

Human Resources for Health (HRH) Strategic Work Plan for Sudan (2008-2012)

A Report for the World Health Organization (WHO) and
the Federal Ministry of Health (FMOH)/Sudan

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Executive summary

Human resources for health (HRH) are a very important asset for health systems worldwide. After a long period of neglect, HRH is increasingly recognised as a priority area for health system strengthening interventions. Therefore, human resource planning is regarded as an entry point to define and address health workforce issues.

This strategic work plan for HRH in Sudan is introduced with the aim of guiding the efforts and further work in developing human resource plans at different levels of the health system in a comprehensive approach that considers all dimensions of HRH. The plan also defines the issues and priorities and suggests strategic actions to revive and improve HR policies, planning, production and management systems.

The plan is based on a thorough situation analysis enriched by data and information coming from different sources including records, registries, interviews and literature review. Some important documents like the national health policy, the 5 year strategy for health and the national HRH survey were used to guide and inform the development of this plan.

Sudan is an extensive African country with great potentials and natural resources. However, health system performance and health indicators are regarded to be poor with figures lagging behind the benchmarks of the Millennium Development Goals (MDGs). Health workforce training and practice were deeply rooted in Sudan which was regarded as a pioneering country in the continent. Educational and management work over years has culminated into a health workforce that is composed of nearly 100 thousands health workers making over 20 different professions. The picture of Sudan health workforce of today shows slight dominance of females representing 51 percent but with increasing trends. The age structure points to a rather young health workforce probably due to the recent expansion of medical education and health training. The majority of health workers are employed by the civil service under the ministry of health in addition to lower numbers in the army, police, universities and health insurance fund. Exclusive private sector staff represents only 9 percent, taking into account that dual practice is very common. Geographical distribution of health workers shows very clear bias towards urban setting especially Khartoum state where 65 percent of specialist doctors and 58 percent of technicians are found.

The stakeholders concerned with HRH issues in Sudan are various. The Federal Ministry of Health and the state ministries of health are the major employers responsible for human resource management and in service development. The Ministry of Higher Education is responsible for pre-service training and production of health workers through a total of 98 medical schools and health training institutes affiliated to different universities. The Sudan Medical Council is entrusted with registration and licensing of doctors, pharmacists and dentists while the Council for Allied Health Professions is dealing with the rest of the health workforce. The Army Medical Corps, the Police Health Services and the Health Insurance Fund in addition to the private sector are all health providers that employ a share of the country workforce. Professional associations for doctors and other categories of health workers are mainly playing roles in trade union activities and continuous professional development.

Appraisal of the HRH systems in Sudan shows a record of some successes, shortcomings and challenging issues. In the domain of HR policy, a group of policies focusing on training, career pathways and staffing norms were developed and introduced over the last five years. They produced positive effects despite problems in implementation of some policies.

Consensus over policy development and sound implementation mechanisms remain as two challenging areas.

As for HR planning, the record is not satisfactory with poor focus and dichotomies between HR planning and overall health planning. When HR planning was attempted during the last five years, the plan produced has focused on staff projections to the neglect of other important HR dimensions. Institutionalisation of HR planning at national, state and locality levels are a challenge that needs to be addressed. The capacity for HRH production has been extensively increased over the last two decades in particular for medical education. Despite the positive effects brought by educational expansion, the lack of coordination between health service and academia has resulted in many forms of skill mix imbalance, notably in numbers. The need to review, assess and strengthen capacity for HRH education is currently well recognised.

Human resource management systems were the least developed and emphasised among HRH systems. There are traditions for job descriptions, deployment, personnel administration and performance appraisal, but all these need intensive work for revival, re-adjustment and implementation.

Main issues identified for the strategic work plan include among other aspects, scaling-up of production in particular for nursing and paramedics, establishing a robust human resource information system, effecting and maintaining stakeholder coordination and capacity development for policy, leadership and management. Within the current context, opportunities are there for a productive work on addressing HRH issues. Political commitment and health system focus on health workforce front is an important potential to build on. Promising funding opportunities from national sources and donors are now materialising. In addition to that, the talent of the country workforce together with the huge potential of educational institutions and the willing diaspora are factors positively counting towards human resource development. The country can also benefit from the global movement and international focus on HRH issues in particular for Africa.

The strategic plan thus comes with a vision placing Sudan as a country with talented diversified workforce and proposes a mission for the health system of building this talented workforce capable of delivering the required health interventions.

The goal of the plan is to contribute to improving population health through the development of the health workforce. The following strategic objectives were identified to be accomplished during the period of the plan:

- Develop and institutionalise intelligence and partnership for HRH sector in the country
- Strengthen and institutionalise HRH policies and plans in the decentralised health system of the country
- Advocate for and ensure adequate finance and funding for the health workforce
- Achieve the balance towards production of the right number and skill mix of the health workforce
- Develop and institutionalise human resource management systems at all levels of the decentralised health system of Sudan

For each of the strategic objectives a number of targets are identified together with indicators to monitor and evaluate the progress of the strategic plan.

Building on health workforce indicators and considering the projections in the 5 years health strategy, this plan call for enrolment and production of 68 thousands health workers including 30 thousands nurses, 10 thousands doctors and 10 thousands midwives. Targets for PHC workers were also set to fill the needs for 10 thousands community health workers, 8 thousands medical assistants and 400 family physicians.

Introduction

Human resources for health (HRH) are a very important asset for the health system in any country. During the recent period, HRH issues have been receiving more and more focus and attention based on the appreciation of the centrality of health workforce to health system functioning and effectiveness. The global shortage and crisis in HRH has been increasingly recognized as a factor crippling health systems and jeopardizing health care in particular in developing countries where the effects are most profound. Health workforce is also known to absorb a great share of the health budget both the total and recurrent expenditures. This fact provides legitimacy for giving more focus and concern to HRH issues.

While planning is relevant for health as a discipline, it becomes even fundamental for a domain like HRH that is regarded to be of special importance within the health arena.

Strategic as well as operation planning is an essential requirement for dealing with HRH issues within the context of a health system.

Strategic planning for HRH is of course fundamentally needed to decide direction and provide guidance for what is needed to be done to develop the valuable resource of health workforce. A strategic plan will also lay the foundation and framework for HRH plans that should be developed at all levels of the health system.

However, strategic planning for HRH is mostly not well recognized and established at both national and global levels. Even when human resource planning is attempted, it usually addresses the projection of staff numbers leaving uncovered important areas like HR policies and management systems. Harmonization of HRH planning with the overall health planning process is another problematic area and in many occasions, dichotomies between the two processes are the norm.

In Sudan, the situation is very much similar with the country passing through long periods of neglect for HRH planning. Records of the ministry of health and other health care organizations show no documentation for planning documents in the domain of the health workforce. Not uncommonly, expansion in health care infrastructure and facilities occurs without paying enough attention to the need for health workers both in terms of numbers and qualities. The consequences have usually been a situation where health facilities are poorly functioning or completely non-functioning.

Even when HRH planning was attempted in the country following the recent focus on health system development, the HR plan has come out again focusing on projection of staff numbers for different levels of health care.

Therefore, this strategic plan document is the first of its kind in the country in terms of going beyond numbers to address the sector of HRH in a comprehensive manner.

The plan comes at a time when there is increasing focus and concern for HRH issues in the country. This is typified by the public and professional concern about the sufficiency and performance of the health workforce together with the ongoing debate on medical education and health training. The political will and commitment shown for HR issues and the potentials available for HRH finance and support from the side of government and donors together with the strongly emerging private sector are all factors conducive for the development and implementation of HRH plans.

The main purpose and focus of this strategic plan is to set the agenda, provide for directions and define the main issues that need to be addressed to achieve the strategic development of HRH in the country. The plan introduces the framework for further development of HR operational plans at the national, state and local levels of the health system. Therefore, the preparation of detailed HR plans is mandatory to be embarked on following the endorsement of this strategic plan document.

The structure of this plan document is composed of two main parts. The first part introduces the general country context and focuses on a thorough situation analysis of the human

resource dimensions including health workforce characteristics, stakeholder institutions and appraisal of HRH functions. The analysis concludes by identifying the main issues and challenges in the domain of HRH in Sudan. The second part is concerned with the plan development including the vision, mission and strategic objectives together with the targets and indicators. The section concludes by presenting general projections for key staff, timeline and budget for the plan in addition to the monitoring and evaluation framework.

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Methodology

The aim of this assignment is to develop a comprehensive strategic work plan for human resource for health in Sudan for next 5-years with a clear vision and mission; and essentially this should address all aspects of health human resource, i.e. planning, development, and management. Within the remits of the above aim, specific objectives focus on the following:

1. Review the national health policy and 5-years strategic plan for the provisions relevant to the human resources for health and the related documents¹;
2. Develop a comprehensive situational analysis of the state of HRH in terms of their number, skill mix, distribution (regional and programmatic), and work conditions;
3. Appraise the current system in vogue for human resource planning, development (pre-service and in-service training and skill development), and management;
4. Evaluate (by rapid appraisal) the capacity of institutions engaged in human resource development (pre-service and in-service training and skill development);
5. Identify issues in human resource for health and devise a 5-year comprehensive plan with cost and timeline, covering policy, planning, production²/development³ and management;
6. Present the plan in a workshop to seek consensus and feedback from stakeholders;
7. Incorporate the feedback of stakeholders and submit assignment report as 5-year comprehensive plan.

The author has prepared a conceptual framework to guide the development of plan document. The framework is based on the plan aim and objectives and is informed by the literature review. The Undersecretary Council in the FMOH has reviewed and approved the framework for the HRH strategic plan. Following that the author has embarked on data collection assisted by a team of three persons from the ministry. The following sources of data and information were used for this assignment:

- Records and documents: the author, assisted by the team, has gathered and reviewed relevant records and registries from different organizations including among others, the ministry of health, Ministry of Higher Education, Sudan Medical Council, Council for Allied Health Professions and Sudan Medical Specialization Board. Reports and documents coming out of these institutions or prepared by consultants were also reviewed and consulted. The author has also focused on analyzing and reviewing the national health policy document, the 25 years strategy for health, the 5 years health strategic plan and the 10 years HRH projection plan for Sudan. The health workforce survey carried out in 2006 has provided essential baseline data on the parameters and characteristics of the health workforce and was used to support the situation analysis of the plan document.
- International literature: the author has adopted a literature search strategy (including online databases) through which a good number of relevant documents were obtained. The world health report 2006 focusing on the theme of health workforce has provided a main background reading. Other relevant documents included frameworks and guidelines for HRH in addition to reports and papers analyzing the situation of health

¹ e.g. Sudan Declaration for Nursing and Allied Health Workers' Educational Reform (2001), Survey of health human resources etc.

² Pre-service training and skill development

³ In-service training and skill development

workforce sector especially in African countries. Some of the HR plans for countries such as South Africa and Malawi were also consulted.

Guidelines for medical education focusing on quality assessment prepared by the World Federation for Medical Education (WFME) were extensively used as a framework to assess basic medical education, postgraduate medical education and in-service training (CPD) in Sudan. A document prepared by Bossert et al (2007) was also used to guide analysis of the sections on HRH policies, financing, production and management.

- Interviews and communications: ten key persons representing different stakeholders were interviewed to fill gaps in data and to provide more insight on HRH issues. These interviews were un-structured and they helped substantially in getting more in depth perspective on major themes relating to health workforce. The author has also communicated with resource persons including pioneers in health services and medical education.
- Personal experience: the author has benefited from his interest and previous experience with HRH issues in Sudan including reports written for the WHO and the FMOH. The author has also make use of his participation in the medical education committee formed under the auspices of the Council of Ministers and accomplished over 40 meetings on issues relating to medical education and health workforce.

The draft of this strategic plan document has been forwarded to some colleagues in different stakeholder institutions who suggested and contributed valuable comments. The mission on HRH coming to Sudan during last November from WHO/HQ and EMRO has also contributed vital comments. The final shape and contents of the document is based mainly on contribution from the author and remains his responsibility.

Standards for HRH (numbers and skill mix)

It is widely recognized at the global level that evidence in many aspects of HRH is lacking. As a result there exist no solid standards or benchmarks for the ideal number and skill mix of the health workforce as an international reference. There is no agreement among international organizations of any single norm or standard neither for worker numbers that determine surplus or shortages nor on ideal skill mix. The global situation portrays a picture of marked imbalance in health workforce density with the North American countries scoring a figure of 10.9 health worker per 1000 population compared to a figure of only 1.0 for the Sub-Saharan Africa. The global average is 4.0 health personnel per 1000 people. Skill mix of health workers across countries is also noted to be extremely variable (JLI, 2004). Ideally, the assessment of health workforce requirements for a country should be based on the health-care requirements considering the epidemiological profile and projections of future development needs (Bossert et al, 2007). Comparisons of the country's health worker numbers and mix with similar countries within or outside the geographical region are sometimes a useful measure for assessment and adjustment of HRH situation and can thus provide some sort of benchmarking.

However, in consideration for this situation, some judgments on health workforce norms and standards have been proposed by some organizations. For instance, the World Bank report (1993) maintained that 'public health and minimum essential clinical interventions require about 0.1 physicians per 1000 population and between 2 and 4 graduate nurses per physician'. A recent work reported by the Joint Learning Initiative (JLI) has demonstrated a positive correlation between the density of health workers and improvement in basic health indicators

including infant, under-5 and maternal mortality. A workforce density (counting physicians, nurses and midwives) of less than 2.5 health worker per 1000 population is found to be associated with failure to achieve 80% coverage of measles immunization and births attended by skilled health personnel (JLI, 2004). Based on this and on further research, the WHO suggests that a minimum of 2.3 health workers per 1000 people is required to attain adequate coverage of some essential health interventions and core MDG-related health services (WHO, 2006). Beyond physicians, nurses and midwives; there is little or no guidance on densities or skill mix of the other professions in the health workforce.

This plan will adopt the WHO standard thus mentioned to assess and adjust workforce density in Sudan in general terms. For the skill mix the plan will adopt the recommended ratio of 1 physician for each 4 nurses and will crudely apply that for the rest of the health workforce. The plan notes that these benchmarks are used to adjust the size and composition of the country workforce with the prime intention of avoiding the critical shortage situation and they are by no means a substitute for a specific country assessment for sufficiency. Therefore, this plan benefits from the indicators and benchmarks included in the health policy document and the 5 years strategic plan for health in Sudan.

Situation Analysis

General country context

Geography and Demography

Sudan is the largest country in the African continent sharing borders with nine countries. It is divided, administratively, into 25 states; each in turn consists of several localities – above 140 in total. Spread over one million square miles, the country has a total population of about 36 million, 68% of which live in rural areas, although there is a growing trend of urbanization. The total fertility rate is 5.9 and the population growth rate is 2.6% annually. Almost 44% of the population is below 15 years and 16.4% is under 5 years of age. Life expectancy at birth is estimated at 55 years.



Socio-cultural context

Sudan is a multiethnic multicultural country with hundreds of ethnic and tribal divisions and languages. The northern states cover most of Sudan and include most of the urban centers. The majority of the 29.5 million Sudanese who live in this region are Arabic-speaking Muslims, though a large proportion of the population also speaks traditional non-Arabic mother tongue. The southern part has a population of around 6.5 millions with a predominantly rural, subsistence economy. This region has been severely affected by war since Sudan independence in 1956, resulting in lack of infrastructure development, major destruction and displacement. In this part of the country, people adhere mainly to indigenous traditional beliefs, although Muslims and Christians constitute a significant proportion. The Southern Sudan also has a number of tribal groups and many more languages.

Economic context

In contrast to the challenges faced by many post-conflict countries, the macro-economic indicators are good, except for Sudan's large external debt. The GDP per capita had shown significant increase during the last five years (due mainly to increased oil revenues and the flow of foreign investments) from US\$ 395 in 2001 to US\$ 640 in 2005 and above US\$ 700 in 2006 (FMOH, 2006) The direct share of oil in GDP was only 6.8% in 2000 and increased to 16% in 2005, while agriculture contribution to the GDP has decreased from 46.3 % in 2000 to 39% in 2005. Further more, agriculture remains the main source of income for two out of three people in the north living in rural areas, and for more than 85% of those in the South (FMOH, 2006).

The general government expenditure (GGE) has increased from 352,160 million SD (US\$ 1,371 million) in 2000 to 1,385,134 million SD (5,631 million US\$) in 2005 and estimated to reach 2,130,000 million SD (9,467 million US\$) in 2006. Fifty percent of the government budget in 2005 was from oil revenues.

Government spending on health care has improved over the last years due to the increasing government revenues although the pace is not proportionate to the overall increase in the total government expenditure.

Political context

Sudan has a long history with decentralization dating back to 1951. Decentralization was introduced as a system of governance compatible with the needs of the multi-ethnic and multi-cultural society of Sudan. Since 1991 the political and administrative structure of the country has been based on a presidential republic and a federal system. The system has passed through many stages of development until the Local Government Act 2003 was enacted, giving more authorities and responsibilities to the localities, particularly in the areas of health, education and development. Currently, there is a three-tier government system i.e. federal, state and local government. According to the Comprehensive Peace Agreement (CPA) the Government of National Unity (GONU) was formulated at the national level. An autonomous government for the South of Sudan (GOSS) is introduced as an intermediate level to oversee and coordinate the Southern states affairs. This arrangement will continue for six years (from 2005), after which people of South Sudan will have the freedom to choose between North-South unity or an independent state through a referendum.

The Darfur crisis, which has flared up in 2003, is still a challenge to the government and its partners. The signing of the Darfur Peace Agreement in Abuja 2006 has brought hopes of resolution to the conflict and initiated a recovery process. However, the situation is still fragile. The effect of the crisis on achieving the MDGs cannot be overlooked. It is known that conflicts have great effects on the indicators of mortality and malnutrition as well as poverty and the livelihoods of resident populations.

Epidemiological profile

Sudan, not infrequently, experiences natural disasters including floods, heavy rains and drought. The epidemiological profile of the country is typical of Sub-Saharan African countries; malnutrition and communicable diseases dominate the health scene with high vulnerability to outbreaks. There is also emerging and re-emerging diseases, many of which are compounded by factors beyond the health system. The main causes of morbidity and mortality are infectious and parasitic diseases such as malaria, TB, bilharzias, diarrheal diseases, ARIs and protein-energy malnutrition. Two weeks prevalence of diarrhea and ARIs is 28.8% and 12.4% respectively in under-five children (SHHS, 2006).

Recent data and surveys have shown that non communicable diseases are emerging as a public health problem due to the change in socio-economic and lifestyle conditions. Hospital data shows increase in the number of cases. According to the 2006 Sudan Household Survey, prevalence of hypertension and diabetes were found to be 1.5% and 1% respectively. Other problems such as heart diseases and cancers are also on the move.

MDGs current status and trends

Although the overall health indicators in Northern Sudan are poor, they are better than those of Sub-Saharan African countries, but worse than those of Middle East and North African countries. In addition, the national averages mask significant urban-rural and regional disparities due to conflict, displacement, and chronic poverty. The health indicators reflect a poor health system performance accounted for by several reasons. The recently completed Sudan Household Health Survey shows that the national average of infant Mortality Rate (IMR) is 52/1000, U5MR 73/1000. MMR figure for north Sudan is 638/100,000. Deliveries attended by trained personnel are 68.3%.

Table 1: Health-related MDG indicators⁴

	Sudan	Sub-Saharan Africa	Middle East & North Africa
MDG 1: Poverty and Hunger			
Prevalence of child malnutrition (underweight) (% under 5)	29.6	30	17
Prevalence of child malnutrition (stunting) (% under 5)	31.3	42	23
Prevalence child malnutrition (wasting) (% under 5)	13.7	8	7
MDG 4: Child Mortality			
Under-5 mortality rate (per 1,000)	72	162	54
Infant mortality rate (per 1,000 live births)	51	91	43
Measles immunization (% of children 12-23 months)	62.7	53	86
MDG 5: Maternal Mortality			
Maternal mortality ratio (per 100,000 live births)	638	1,100	360
Births attended by skilled health staff (%)	68.3	44	63
MDG 6: HIV/AIDS, Malaria, and Other Diseases			
Prevalence of HIV (% adults ages 15-49)	1.6	9.2	0.3
Contraceptive prevalence rate (% of women ages 15-49)	7	15	46
Number of children orphaned by HIV/AIDS	..	11M	65,000
Proportion sleeping under insecticide-treated bed nets (% children under-5)	49.8	2	..
Proportion of children with fever treated with anti-malaria medicines (% children under-5 with fever)	50	42	..
Incidence of tuberculosis (per 100,000 per year)	180	339	66
Tuberculosis cases detected under DOTS (%)	44.3
MDG 7: Environment			
Access to an improved water source (% of population)	59.3	55	90
Access to improved sanitation (% of population)	31.2	55	83
General Indicators			
Population	35.5 M	674 M	300 M
Total fertility rate (births per woman ages 15-49)	5.9	5.1	3.3
Life expectancy at birth (years)	57.9	46.2	68.2

The above table shows the national averages, further analysis shows that the national averages disguise significant inequalities and poor health situation at the state level.

Overall, there has been little improvement in the MDG indicators over the 1990s. General evidence and performance indicators of different states in Sudan show that HRH availability

⁴ 1999 SMS and 2000 MICS in northern Sudan, Sudan National Tuberculosis Control Program (2003), UNAIDS (2002), Sudan Central Bureau of Statistics (2001), Sudan National AIDS Control Program (2002), and World Bank (2002).

has been instrumental in deciding the improvement in health indicators. This is typified by the high MMR in the South where reproductive health workers are very scarce.

Health system profile

Following on the decentralization reform in the 1990s, Sudan health system is composed of three layers; federal, state and locality. The Federal Ministry of Health (FMOH) is responsible for formulation of national health policies and overall health planning in addition to human resource development and international relations. The FMOH also supervises the work of lower levels and is mandated to intervene at any stage to deal with emergencies including epidemics and other health disasters. The state ministries of health (SMOHs) are entrusted with the planning, management and delivery of health services in addition to programming and project management at the state level. The Locality Health Department is responsible for management and delivery of PHC services including environmental health activities. PHC services are delivered through health units, health centers and rural hospitals besides ambulatory services for immunization programs. Although these units and services are the responsibility of localities, the federal and state levels exert a lot of power and input into these aspects.

Following on the CPA and the interim constitution, the GOSS has emerged as a distinct level of government as pointed earlier. Consequently, the Ministry of Health, GOSS has figured as a fourth level functioning as interface between the FMOH and the 10 SMOHs in the South. The MOH/GOSS is currently responsible for overall planning of health services in southern Sudan in addition to monitoring and supervision of the SMOHs in the south.

In addition to the ministry of health machinery, some other public and Para-statal organizations are providing health services in Sudan across the levels of care. These organizations include Health Insurance Fund, Army Medical Corps and the Police Health Services. NGOs, national and international are estimated to provide services for one fifth of the country population mainly in conflict areas and urban peripheries. The private for profit sector in Sudan has expanded considerably during the last two decades. Private medical and health training schools in addition to private hospitals and medical centers are a common feature of Sudan health system of today. However, these private institutions are predominantly confined to Khartoum, the capital of Sudan.

The overall coordination of health system functions in Sudan is rather weak. The stewardship role is not figuring properly leading to inconsistencies and fragmentation in important areas like policy development and service provision.

Background on HRH in Sudan

The history of comprehensive and organized health services in Sudan properly begins in 1899 with the inauguration of Anglo-Egyptian Condominium (Bayoumi, 1979). Health personnel were exclusively non-Sudanese with the British doctors leading the service. It was not until the First World War, when recruitment of expatriate staff became difficult, that Sudanese element was introduced. Until 1924 the health workforce consisted of 16 British doctors, 30 Syrian doctors and 20 Sudanese medical assistants who were the first batch of the medical assistants school established in Port Sudan in 1918 (Bayoumi, 1979).

The year 1924 marked the inauguration of Kitchener School of Medicine-later Faculty of Medicine, University of Khartoum- as the first medical school in tropical Africa. Its first batch of Sudanese doctors joined the service in 1928 (Bayoumi, 1979).

The period up to the country's independence in 1956 witnessed establishment of several health personnel training schools including besides doctors and medical assistants; nursing, midwifery, laboratory, public health and other cadres. In 1969 the total health workforce

reached 11,049 including over 12 different professions (FMOH, 1969). Doctors were then 874, exclusively Sudanese.

During the following 20 years, the number of health personnel increased considerably following expansion of training and opening of new schools for several cadres. Table 2 presents a comparison for selected professions.

Table 2: Increase in numbers of selected five medical professions in Sudan for the years 1969, 1979, and 1989

Category	Total numbers		
	1969	1979	1989
Doctors	874	2177	2499
Medical Assistants	782	2280	4947
Nurses (enrolled)	7281	12871	16954
Sister Nurses ⁵	53	252	450
Midwives	1572	3697	5308

Source: Annual statistical reports, FMOH 1969, 1979, 1989.

The year 1990 marked a beginning of what came to be known as the "Revolution of Higher Education--RHE". About 10 new universities were opened and a great expansion of intake ensued. Over the coming four years, the number of medical schools rose from 4 to 24 including 5 private schools. By the year 2000, the number of annually graduated doctors jumped from 400 to 1400. Table 3 reflects the situation following RHE.

Table 3: Trend in numbers for five medical professions in Sudan for the period 1997-2003

Category	Total numbers						
	1997	1998	1999	2000	2001	2002	2003
Doctors	3423	4462	4424	4992	5561	5765	6193
Medical assistants	5742	5685	6052	6193	6610	6748	6730
Nurses (enrolled)	16509	17591	18292	17526	16199	16531	17174
Midwives	7506	7601	8047	9290	10045	10415	11360
Sister Nurses	472	560	527	548	626	676	698

Source: Annual statistical reports, FMOH 1997-2003.

The product of the RHE has been an increase in the numbers of highly trained cadres, especially doctors in proportion to other cadres including nurses and medical assistants (table 3).

Current situation of HRH in Sudan

There is, currently a total of 97303 health workers in Sudan comprising over 20 different professions. The following table summarizes the situation of the existing health workforce in Sudan in terms of numbers and densities of health professions

This picture is better compared to many of the Sub-Saharan Africa countries in terms of numbers and densities. However, according to the WHO criteria Sudan falls within the critical shortage zoon considering the density of physicians, nurses and midwives (1.23 per 1000 people). This holds true despite the fact that the total density of the health workforce in Sudan (2.70) is above the WHO critical shortage benchmark of 2.30 per 1000 population.

⁵ These are female nurses with university qualifications.

Table (4) total numbers and densities of health workforce in Sudan, 2006*

Category	Total number	Density (per 1000 population)
Total physicians	11083	0.31
House Officers	4132	0.11
Medical Officers	3484	0.10
Registrars	1550	0.04
Specialists	1910	0.05
Dentists	944	0.03
Pharmacists	1531	0.04
Nurses	18433	0.51
Midwives	14921	0.41
Other health workforce (assistants, tech. etc..)	21723	0.60
Environmental and public health workforce	2897	0.08
Administrative and support staff	25771	0.72
Total	97303	2.70

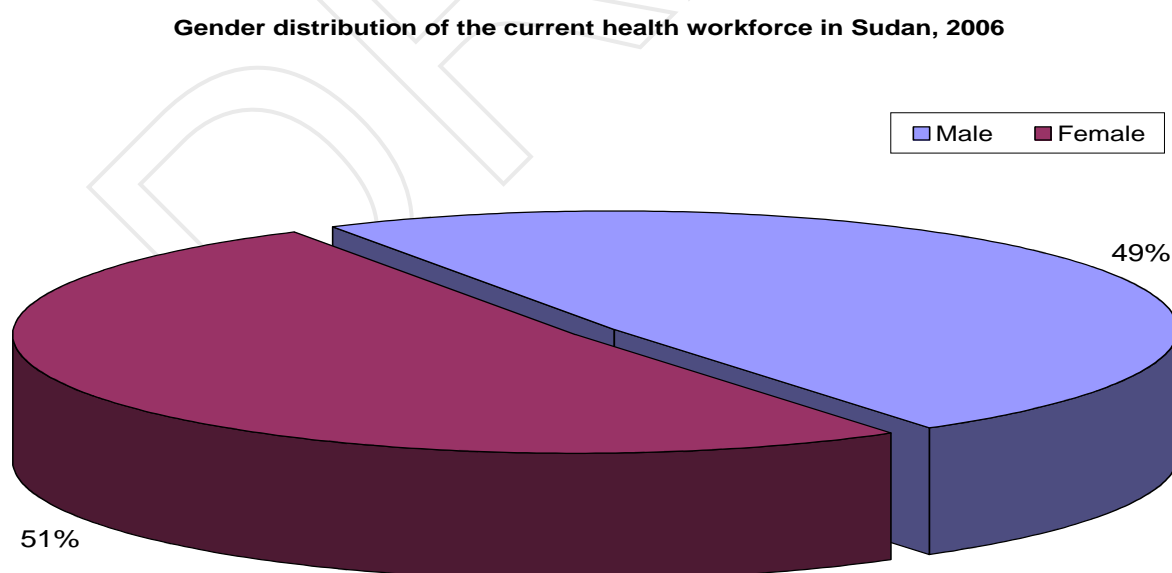
Skill mix

The ratio of physicians to nurses as derived from the table is 1: 1.7. This is considered low and points to skill imbalance compared to the generally accepted standard of 1 physician for every 4 nurses. The same applies to the comparison between physicians and other paramedical staff in particular midwives. The management and support staff constitutes just above a quarter of the total workforce (26%) giving a picture consistent with the regional figure for EMRO (25%) and coming closer to the global average of 33%.

Gender distribution

There is now nearly an equilibrium status between males and females in the overall health workforce with slight dominance of females, comprising 51%. Increasing numbers of females in medical schools is partly responsible for the now clearly observed rising trend of feminization of the health workforce.

Fig (1) Gender distribution of the current health workforce in Sudan, 2006

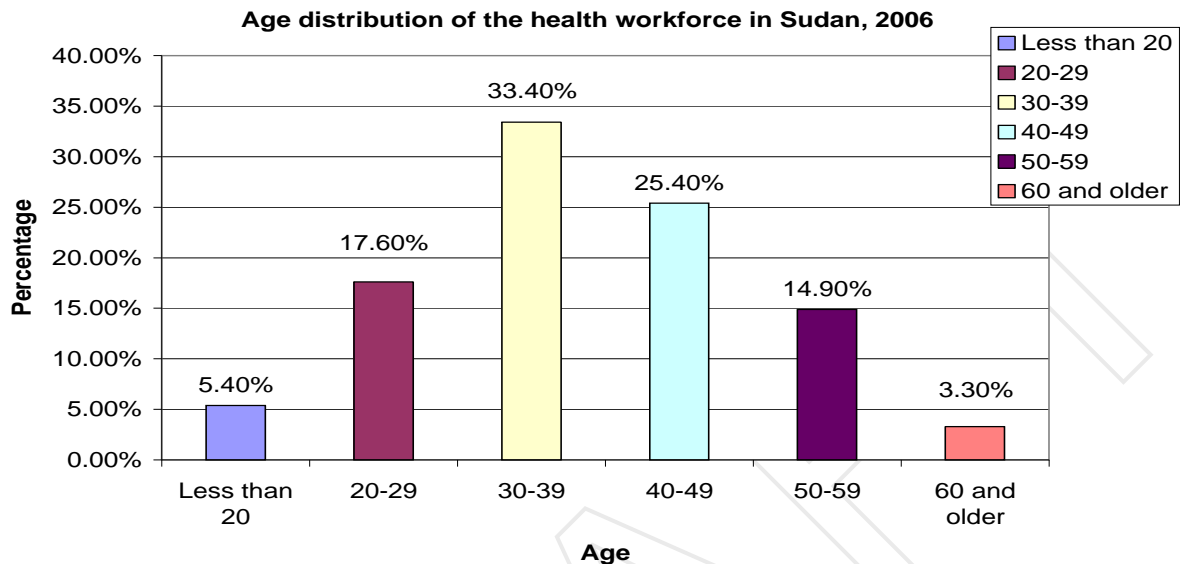


* this picture is very close to reality because data was compiled and triangulated from different sources including the annual statistical report of FMOH, the registries of Sudan Medical Council and the paramedical council, the mapping of HRH carried out in 2005, the national HRH survey conducted in 2006 and results of some studies.

Age distribution

More than half of the workforce is composed of persons with ages below 40 years and a quarter of the total health workers fall within the range of 40-49 years. This reflects a situation of a rather young health workforce and carries important implications for planning. This picture results likely from the recent substantial increase in production of HRH in Sudan following RHE.

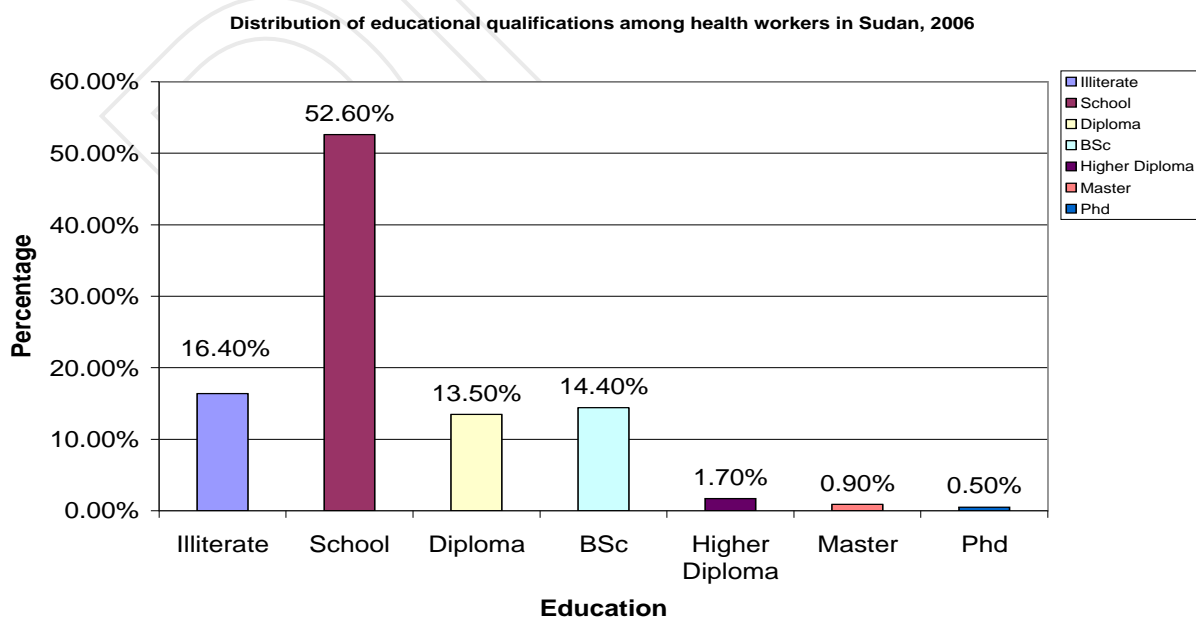
Fig (2): Age distribution of the health workforce in Sudan, 2006



Educational characteristics of the health workforce

Almost 72.5% of the health workforce has qualifications less than the bachelor university degree. This picture emanates from the fact that the vast majority of nurses and midwives are trained within the traditional schools giving vocational qualifications. The bachelor and higher degrees, comprising 27.5%, are largely accounted for by doctors and technicians whose numbers are on the move currently.

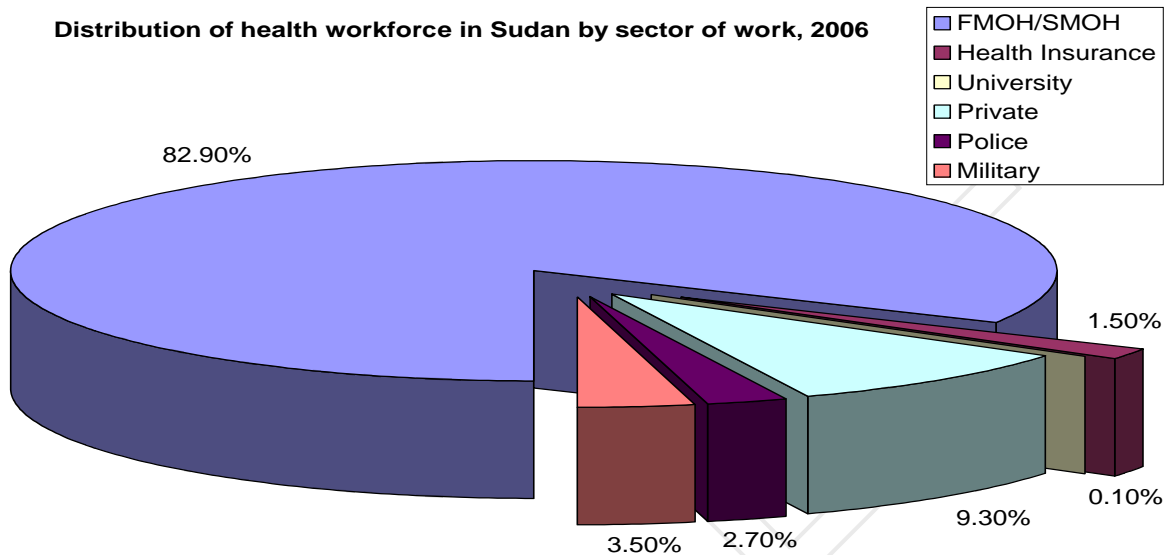
Fig (3): Distribution of educational qualifications among health workers in Sudan, 2006



Distribution of health workforce by sector

The majority of the health workforce in Sudan is employed by the public sector, mainly the ministry of health. The exclusively private health workers constitute only 9.3%. However, dual practice is very common among health professionals as will be shown later.

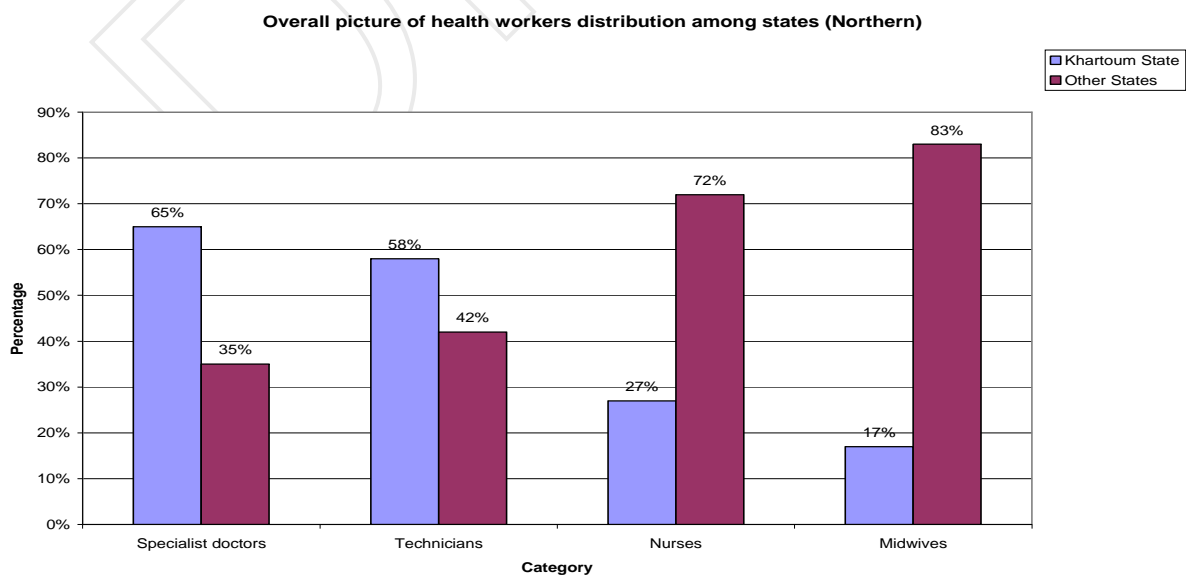
Fig (4): Distribution of health workforce in Sudan by sector of work, 2006



Geographical distribution

Nearly 70 % of health personnel work in urban settings serving a bout 30% of the total country population. More than third of the overall health workforce in Sudan is located in Khartoum state (the capital) as opposed to the other 24 states. The case is most illustrative among physicians where 65% of specialists are currently practicing in Khartoum. Thus the rural-urban imbalance is further distorted by the high concentration of the health workforce in Khartoum. For example there are 21 specialists for every 100.000 people in Khartoum compared to a ratio of only 0.8 per 100.000 in West Darfur state. Following on the geographical pattern of health services distribution, around 67 percent of health workers staff the secondary and tertiary facilities as opposed to only 33 percent in PHC settings.

Fig (5): Overall picture of health workers distribution among states(northern)



Stakeholders related to human resources for health in Sudan

To complete the picture about the current situation of HRH in Sudan, the following is a brief account of the responsibilities and roles of the main institutions (stakeholders) employing health workers or holding responsibilities and decisions concerning the HRH in the country.

Ministry of health

Currently, three levels of governmental authority come under this heading. These include the Federal Ministry of health (FMOH), states ministries of health (SMOHs) and the Ministry of Health- Government of Southern Sudan (MOH-GOSS).

The FMOH is the national level ministry that is responsible for health policy setting and the overall planning of health care in the country. This role extends to encompass the responsibility for human resource development including planning, training and the strategic management. The FMOH prepares health workforce policies and plans and support the production of health professionals at the basic and postgraduate levels besides its duties in recruitment and deployment of health staff to different states of the country. The ministry also provides in-service training for health professionals through short training courses and workshops inside and outside Sudan. In addition, the FMOH also compiles data and information on the public health workforce country-wide.

However, to comply with the increasing introduction of decentralization arrangements in Sudan, the FMOH started to delegate several responsibilities regarding HRH to state levels. These include, *inter alia*; deployment, management and recently direct appointment of all grades of health cadres.

State ministries of health (SMOHs)

The SMOHs working under the authority of the states governments are responsible for developing plans for distribution and management of health staff across different health facilities under control of these ministries. Deployment and transfer of many of the staff grade levels to localities (lowest administrative level) is also exercised by the SMOH. Currently, the SMOHs employ the majority of health staff in the country

Ministry of Health, Government of Southern Sudan (MOH- GOSS)

Following the Comprehensive Peace Agreement (CPA) signed in 2005 and the introduction of the interim constitution for Sudan, the government of Southern Sudan (GOSS) was granted a great amount of autonomy. This makes it figure as a distinct level of government responsible for the governance of the 10 states in the geographical area of Southern Sudan.

Within the GOSS, the ministry of health is entrusted with the responsibility of planning and managing the health services including monitoring and supervision of the 10 state ministries of health in the South. In the domain of HRH, the MOH-GOSS is responsible, within the national HRH policy framework, for the policies and plans related to human resource development in the South.

Ministry of Higher Education (MOHE)

This is the ministry responsible for the universities and higher educational institutes including medical schools and health training institutes and faculties. A range of undergraduate and postgraduate programs are provided for different sectors including the health sector through the institutions affiliated to the MOHE. According to the 1995 Act of Higher Education and Scientific Research, the National Council for Higher Education (NCHE) is responsible for setting the policy and overall plans for higher education programs. The council also decides the role of each higher education institutions in implementing policies and plans including the numbers of admission. The NCHE is headed by the minister of higher education and represents public and private universities in addition to other related ministries and research

institutions. The MOHE plays the role of licensing private training institutions based on standard criteria set by the relevant committees within the NCHE. Universities affiliated to the MOHE practically enjoy a considerable degree of autonomy in many aspects relating to educational process. These include areas such as creation and expansion of training programs, resource generation and staff affairs including appointment and promotion. The training and development of university staff is coordinated and financed through the MOHE.

Ministry of Labor

This ministry hosts two important bodies dealing with workforce issues. One is the Chamber of Civil Service (CCS) which is concerned with employment and promotion of public sector staff. The chamber holds the records of jobs, both filled and vacant across the country. The other body is the national department for training, hitherto the National Council for Training (NCT). This council is responsible for the overall planning and funding of training for public sector employees both inside the country and overseas. Thus it holds the registries of scholarships and training opportunities provided in each sector including data pertinent to the health workforce.

Health workers in the public sector are employed under the civil service and are tied by its rules and regulations. Their terms of employment are similar and comparable to workers in other governmental sectors. The CCS controls the promotion of all public sector employees besides the appointment of senior grade staff. However, following the new decentralization arrangements, most of the work of the chamber is transferred to states. This includes appointment and promotion for all staff grades within each state.

Ministry of Finance (MOF)

This ministry is the fund providing body for salaries of all public sector employees including health staff. It also exercises power on guiding and deciding the rewards and incentives given at the workplace in public sector. The MOF also controls the overall funds and transfers for states including budgets for allowances for placement of staff in rural and remote areas. Through its control of public finance, this ministry is an important stakeholder in relation to revival of HRH in the country.

Sudan Medical Council (SMC)

This is an independent body responsible for the licensing and registration of physicians, dentists and pharmacists. The SMC works under the umbrella of the Council of Ministers and holds the temporary and permanent registries of doctors, dentists and pharmacists. The responsibilities of the council extend to involve accreditation of schools of medicine, dentistry and pharmacy besides postgraduate medical training institutions. The SMC is also mandated to ensure safety of practice by doctors and it receives and deals with complaints of general public in this regards. The Sudan Medical Council Act, amended in 2004 regulates the work and responsibilities of this professional council.

Council for Allied Health Professions (CAHP)

This is the counterpart council to the SMC entrusted with the responsibility of licensing and registration of nurses, technical and paramedical staff. The council holds both temporary and permanent registries for all categories of allied health workforce. The CAHP works under the remits of the Public Health Act of 1975 and is affiliated to the FMOH and based within its premises. However, there are currently steps to revitalize this council through giving it an autonomous status (similar to the SMC). A separate law for the CAHP is now being prepared to be forwarded to the Council of Ministers for approval and recommendation for final endorsement by the Parliament.

Sudan Medical Specialization Board (SMSB)

This professional board was introduced in 1995 to provide postgraduate training in medical specialties for doctors. According to its Law of 1999 amended 2004, the SMSB is responsible for both specialty training and continuing professional development (CPD) for doctors, dentists and pharmacists. The board now administers training programs leading to postgraduate doctorate in over 22 medical specialties. The board has actually replaced the universities in postgraduate medical education and according to a presidential decree, it monopolies postgraduate qualifications for doctors and controls the exit for training abroad. The SMSB administers the placement of registrar doctors for training across different hospitals and specialized centers throughout the four years period leading to the board qualification.

Army Medical Corps (AMC)

This department is affiliated to the armed forces of the country under the auspices of the Ministry of Defense. The AMC owns a big central hospital in Khartoum besides a network of health centers and hospitals in the capital and across states. The AMC is responsible for recruitment, planning, management and training of its health workforce. Health workers are employed and promoted under the military terms (**outside** civil service) and are deployed to different facilities and functions based on military norms and regulations.

Police Health Services

This department is affiliated to the Ministry of Interior and is responsible for the police health workforce in terms of planning, recruitment, training and management. Police health workforce is a uniform workforce that works in a way similar to the situation in the medical corps. On another front, the Ministry of Interior has established in 1998 a university- the Rabat University- which is now giving medical, nursing, dental and pharmacy qualifications. The Rabat University is training and graduating students not only for the needs of police services, but for the country at large.

Health Insurance Fund

Public health insurance was formally introduced in Sudan in 1994 with the inception of the National Health Insurance Fund (NHIF). Health insurance nowadays mainly covers public sector employees and the NHIF has established its own health facilities in different states. Health staff working in health insurance services is predominantly seconded from the ministry of health. However, the NHIF also employs some staff exclusively, in particular management and support staff. The NHIF and the states health insurance corporations provide toppings for health professionals working in governmental health facilities in rewards for dealing with the insured patients. The NHIF was originally created under the FMOH but has been recently moved to be affiliated to the Ministry of Social Affairs.

Sudan Doctors Union (SDU)

This deeply-rooted association of Sudanese doctors is known historically for its professional and political power. It represents the physicians who are key staff in the machinery of the country health services. Sudanese doctors working inside the country or abroad have the right to full SDU membership based on paying subscriptions. The SDU hosts the Sudanese Medical Association as an academic arm dealing with CPD for doctors. Different discipline and specialty societies work under the umbrella of the Sudanese medical association.

In 1992, a new law was introduced to regulate the professional associations in Sudan. Accordingly, SDU mandate was determined within the remits of professional activities leading to improvement and advancement of the medical profession. The trade union

activities were transferred to a unified body dealing with the affairs of all categories of the health workforce.

Currently the SDU holds registry of members and organizes some conferences and similar activities for doctors. Despite the mandate decided by the law, SDU is still involved in trade union issues for doctors such as salaries and general utilities and services. Similar professional associations as the SDU were created for dentists and pharmacists.

Sudan Health and Social Professions Trade Union (SHSPTU)

As mentioned above, this broadly-based body was introduced according to the Trade Unions Law of 1992 to represent all health and social professions in the country. The membership is broad involving all categories of health workers and the SHSPTU functions on the basis of well-structured branches across states, health and social facilities. The trade union power of this body is very strong with regards to paramedical staff issues. However, for historical reasons, doctors and health technicians are not yet well integrated within this trade union. The SHSPTU is funded mainly through member dues and it deals with many of the social services and work-related issues of its members.

Sudanese Technicians Association

This is a body dealing with professional issues of the Sudanese technicians working in different sectors including health. Medical laboratory technicians, radiology technicians, health and environmental officers, graduate nurses and physiotherapists are among the health professions included in this association. Currently, this association is actively negotiating the working conditions and scope of practice for health technicians.

The private sector

The private health sector has witnessed a rapid growth and expansion in Sudan during the 1990s and up to date. This was typified by the appearance of several health institutions both in services and medical education. Currently, the private for profit sector owns and operate medical centers, hospitals, medical schools and health training institutes in different parts of the country focusing on Khartoum state.

The private sector employs nearly 10 % of the health workforce in the country as shown earlier. However, around 90% of health providers in the public sector use to moonlight with the private sector in a sort of dual practice (FMOH, 2005).

Two categories of the exclusive private sector workers are there. One category involves the self-employed practitioners who are mainly physicians, dentists and pharmacists operating private clinics and pharmacies. The second category constitutes those who are employed by private hospitals, medical schools and other health training facilities. Terms of employment and the rewards package are better for private sector staff in comparison with public employees working under the civil service of the country. The private health institutions are exclusively confined to urban areas and big cities and are owned mainly by Sudanese investors.

On the other hand, private non-for profit sector operates in the country through different national and international NGOs. Staff is employed or affiliated to these organizations on different terms with far better conditions for those working with international NGOs. Health workers use to commonly circulate between NGOs and the public sector. According to recent statistics, NGOs provide health services for around eight million of the country's population, mostly in peri-urban and rural areas.

International agencies

UN agencies, donors and some international organizations are found in Sudan. They hire external as well as national staff and in some sense they are draining the public sector through attracting qualified personnel. No evident role is played by these agencies in funding or developing HRH in Sudan apart from the role of WHO and few agencies in technical support and CPD of the national health workforce.

Table (6) summary of the roles and capacities of HRH stakeholders in Sudan

Stakeholder	Current role in HRH
Federal ministry of Health (FMOH)	<ul style="list-style-type: none"> - HRH policy and planning - HRH mass training (chances and funding) - (training paramedics) - HRH management - HRH data and information
Ministry of Higher Education (MOHE)	<ul style="list-style-type: none"> - policies on production of HRH - licensing, monitoring and supervision of medical and health training institutions - teaching staff development and training - data and information on admissions, enrollment, graduates and staff
Ministry of Labor (MOL) Chamber of Civil Service (CCS) National Council For Training (NCT)	<ul style="list-style-type: none"> - employment and condition of service for health staff - salary structure and promotion of health workers - approval and funding of health workforce training
Ministry of Finance (MOF)	<ul style="list-style-type: none"> - provision of salaries for public sector staff - regulating the range of incentives for health staff - funding the allowances and incentive packages for staff placement
Sudan Medical Council (SMC)	<ul style="list-style-type: none"> - licensing and registration of physicians, dentists and pharmacists - accreditation of medical, dental and pharmacy schools - ensuring safety of practice by doctors and dealing with related public complaints
Council for Allied Health Professions (CAHP)	<ul style="list-style-type: none"> - licensing and registration of nurses, technicians and paramedical staff
Sudan Medical Specialization Board (SMSB)	<ul style="list-style-type: none"> - postgraduate training for doctors, dentists and pharmacists - CPD for doctors
Army Medical Corps (AMC)	<ul style="list-style-type: none"> - employment of HRH on military terms - planning, distribution, management and training of affiliated staff
Police Health Services	<ul style="list-style-type: none"> - employment of HRH on Police forces terms - planning, distribution, management and training of affiliated staff - provision of basic medical and health cadre education
Health Insurance Fund	<ul style="list-style-type: none"> - top-ups for health staff providing insurance services - employment and management of some staff categories
Sudan Doctors Union (SDU)	<ul style="list-style-type: none"> - Professional development for doctors (conferences, etc...) - support for doctors in condition of work and some general services
Sudan Health and Social Professions Trade Union (SHSPTU)	<ul style="list-style-type: none"> - condition of services and trade union activities for all health workers (with a focus on nursing and paramedics)
Sudanese Technicians Association (STA)	<ul style="list-style-type: none"> - professional development of technical staff - condition of work and scope of practice for technicians
Private sector	<ul style="list-style-type: none"> - production of HRH (basic and postgraduate training) - employment and management of staff - toppings for public sector staff working on part-time basis
International agencies and donors	<ul style="list-style-type: none"> - technical support in HRH policy and management - training and CPD chances - toppings for public sector staff

Appraisal of HRH systems in Sudan

Human resource policy

Although the history of health services in Sudan points to good HRH systems and practices, up till the year 2000 there exist no documentation or wide communication of a distinct HRH

policy. In fact most of the good practices in areas such as training and deployment of health professionals have been eroded over years giving way to an evidently weak situation of HRD. This was manifested by a mismatch between HRH dynamics and the overall health policy in the country. Starting from the year 2001, human resource policy has been clearly emphasized. In fact, the national health policy that is recently finalized has stressed and focused on guiding principles for HRH policies. The framework introduced for HRH in the National health policy includes aspects such as the creation of a coordination mechanism for HRH issues, expanding training capacity with a focus on correcting skill mix imbalance and revitalizing CPD, promotion of new cadres such as family doctor and community health worker and separation between public and private practice. The 5 years strategic plan for health (2007-2011) has also stressed the centrality of health workforce to achieving Millennium Development Goals (MDGs) and has devoted a distinct section on HRH planning.

HRH policies are also affected by the general country context in particular civil service rules and regulations including public service law.

During the past 5 years, the FMOH has managed to launch a package of health workforce policies through a process of wide consultation within the health sector and related bodies. The following policies have been so far prepared and introduced since 2001:

- The doctor's career pathway policy: this is mainly a deployment policy for all categories of doctors including generalist and specialist physicians. It also responds to the issues of career progression and promotion.
- Technical and allied personnel career pathway policy: like the above one, this policy focuses on similar issues pertaining to other categories of health workers including technicians and paramedical staff.
- Health workforce training policy: this focuses mainly on the eligibility and selection criteria for internal and overseas training together with the directions and priorities for training. The policy has also emphasized equal opportunity for training among health workers.
- Continuing professional development (CPD) policy: this policy emphasizes continuing education for health personnel as a means for improving performance of the health system.
- Internship policy: although internship for doctors is running for years, this policy came to improve standards and guidelines for this period. The policy has also introduced internship period for categories such as dentists, pharmacists and health technicians
- Sudan Declaration for promotion of nursing, midwifery and allied health professions: this policy was introduced jointly by the FMOH, Ministry of Higher Education and the WHO in 2001. It envisioned the upgrading of nursing and paramedical training to a university degree to improve the quality of health services.
- Staffing norm policy: this policy came as part of the overall policy that addressed reorganization of health facilities in the country. The policy defines the criteria for staffing different types of health facilities with different types of health personnel.

The development of HRH policies is a great achievement in itself moreover; these policies have materialized as will be shown in the HRH management section of this report. However, some criticism could be directed to these policies mainly on the aspects of inclusiveness and implementation. Health workforce issues are known to be determined by a wide range of stakeholders holding specific responsibilities and authorities relating to different HR domains. Despite the participatory approach adopted in preparation of HRH policies mentioned, institutional endorsement and commitment to the different policy obligations was not appropriately sought and guaranteed. In fact, some of the policies such as that on CPD did not give sufficient attention to systemic issues and the roles of different stakeholders. Concerning implementation status of HRH policies, lack of clear role specification and definition of appropriate mechanisms has resulted in an overall sub-optimum policy implementation. This

is particularly relevant to the group of policies pertinent to technical, nursing and paramedical staff. The Sudan Declaration policy on upgrading nursing and allied health personnel is a clear example of failure of implementation due to weak mechanisms and lack of coordination between relevant stakeholders. In general, implementation of health workforce policies has been lacking a monitoring and evaluation framework and tool that could have contributed to enhancement of policy implementation.

Overall, this direction and experience of devising distinct HRH policies to guide human resource development is in itself a great achievement. Further work on top of these efforts is needed in two main fronts. One is the evaluation and assessment of the group of policies discussed above in a way that could lead to rectification and consolidation of HRH policies to guide future interventions in this domain. The other front is the endeavor to develop new policies to address the gaps that are not covered by the already adopted policies. Priorities in this area could include policies on professional standards, licensing and accreditation, scope of practice and job descriptions besides policies on introduction of new cadres such as the family physician.

An under-stressed policy area is that pertinent to HRH finance including mobilization, budgeting and allocation issues. Due to its utmost importance, the following section is devoted to discussing HRH finance focusing on situation review and gaps to be addressed.

HRH finance

Health care in Sudan is generally underfinanced. Public per capita health care spending is in the order of US\$ 13 according to 2006 figures. The total health care expenditure as percent of GDP is estimated to be 4.5% in 2006 of which only 1.5% is public. Although the health care budget has been increased considerably over the last 5 years due to oil, the general spending on health as percent of total government spending is still low scoring 5.1% and falling short of the 15% target of Abuja Declaration to which Sudan is committed.

Coming to status of HRH finance, figures in Sudan are generally consistent with patterns of spending in developing countries and world averages with the health workforce absorbing a considerable share of health care budget. However, when it comes to absolute figures and the size of funding, it becomes clear that HRH is underfinanced as a consequence of the generally very low share of health care in the total government expenditure.

The total spending on HRH as percent of the general government health expenditure (GGHE) is estimated to be 49 percent in 2006. This is comparable to EMRO average of 50.8 percent and much higher than the figure of 29.5 percent of AFRO. Total spending on the health workforce as percent of the recurrent health budget is in the order of 69 percent (this includes salaries and incentive packages) falling within the 60-80 percent range for developing countries (Buchan, 2000).

Wages of health workers are generally comparable to the figures for other public sector employees within the civil service. However, some categories such as judges and oil engineers enjoy an exceptionally high wages comparing to more than two folds of doctors salaries. Inside the health sector, doctors in addition to dentists and pharmacists are better remunerated compared to nurses, technicians and other allied health personnel. The gradient difference in salary between public and private sector for health workers is wide to the favor of those employed by the private sector institutions.

Overall, wages of health workers in Sudan appear evidently poor when compared with some countries in the region and the African continent. The entry salary for medical doctors for instance is 500 SDG (USD 250) comparing to a figure of USD 430 in Zimbabwe (USAID, 2003).

Non-wage benefits for health workers such as fringes, rural allowances and housing subsidies are never systematically applied in Sudan. Despite the fact that the health workforce is subject

to a range of financial incentives, indirect monetary subsidies are largely missing. Rural placement subsidies that proved to be effective in retaining health workers are only adopted in limited examples.

Human resource planning

The record of HRH planning is regarded to be poor in the country leading to many problems in production, employment and deployment of health workforce. Even when HRH projections were included in the National Comprehensive Strategy (NCS) for the period 1992-2002, the figures were largely unrealistic resulting in very poor implementation (Elabassi, 2004). Lack of data and information on HRH was incriminated as a jeopardizing factor on a robust human resource planning. The dichotomy between health planning and HRH planning was also evident taking many forms such as projecting expansion in health facilities without paying attention to the health workforce needed. Within the HRH management setup, mechanisms and structures for a coherent and coordinated planning were largely missing. Overshadowing all that was the extremely weak capacity of HRH structures within decentralized levels in terms of planning for the health human resource.

In the recent years, there appear a serious thinking to develop HRH plans both at the strategic and the operational levels. The FMOH has devoted a lot of concern to obtaining enough HRH data and intelligence. The ministry has commissioned some situation analysis reports besides conducting health system surveys and workforce mapping that contributed positively to plans development. In 2003, the FMOH has successfully launched the strategic 10 year HRH projection plan (2003-2012) for the first time in the country with the help of the WHO. The strategic plan has been prepared through a wide consultation involving relevant stakeholders and health professionals; this was regarded to be fundamental because HRH is a concern of a wide network of stakeholders as earlier emphasized. The strategic plan adopts the service target approach for health workforce projections building on the new organization of health facilities in the country and the staffing norm policy. Based on the strategic plan, the human resource department issued annual and biannual plans for the national health workforce projections.

Achievements in the aspect of comprehensive HRH planning have led to identification and consideration of many gaps and problems in the sector of HRH in Sudan. Table 7 for example presents the composition of the health workforce in the country (selected categories) together with the gaps in each category.

Table 7: the total number of health workers (specialist doctors, nurses and allied health personnel) in Sudan with gaps in each category, 2003

Category	Current	Needed	Gaps
Specialized Doctors	1000	5000	4000
Nurses	16,000	80,000	64,000
Midwives	16,629	26,000	9,371
Other AHWs	6,000	26,000	20,000
Total	47,663	144,400	96,737

However, the 10 years HRH strategy has a main shortcoming, that is its consideration of only one aspect of HRH planning-that is production and projection of numbers. Issues such as HRH policies, finance and management were not considered. Needless to say now that, addressing HRH should go beyond projection of numbers and staffing levels to include other important aspects such as policies, financing, education systems, partnership and HR management systems. Thus, this current HRH strategy document is the first of its kind in terms of coverage and consideration for aspects and dimensions of HRH.

Human resource production

This section will assess the capacity of HRH education in two aspects, quantity and quality.

Quantity

The pool of potential applicants for medical schools and health training institutes in Sudan is generally good due to the fair rate of secondary school enrollment which has expanded considerably during the last decade. In 2007, they were 244,434 students who passed the secondary school exams. Competitiveness in application for medical schools and health training institutes is generally high. The lowest percentage for admission in public medical schools was 86 percent. Both, institutional and student acceptance rates are usually high in public sector universities. However, student acceptance rate is observed to be below average in private medical and health training institutions probably due to affordability reasons. Exact figures for success rates are not available for health training institutions although some estimates from the Ministry of Higher Education points to a figure of 5 percent as a drop-out rate from medical schools. As to the entry of graduates into the health workforce pool, the situation is generally alarming with increasingly high rates of unemployment and migration. For instance, unemployment among health officers and laboratory technicians is estimated to be as high as 60 percent.

Institutional capacities

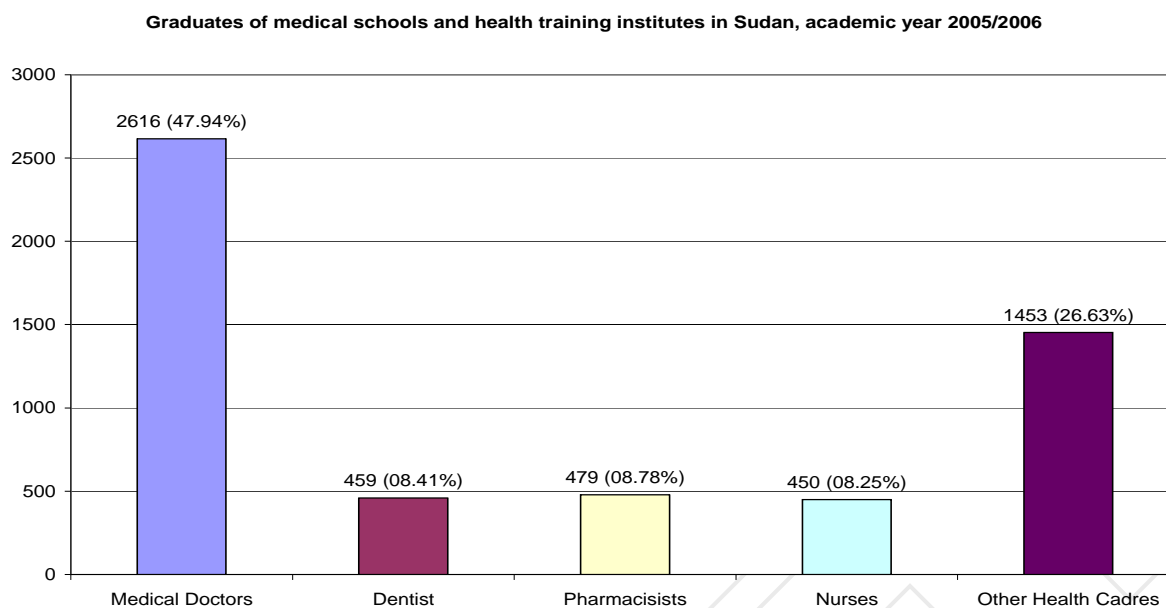
Following the RHE in the early 1990s, higher education has expanded considerably in Sudan. The number of universities has jumped from 19 in 1990 to 65 in 2003 with the total student enrollment moving from 28060 to 313743 during the same period (MOHE, 2003). The number of medical schools has risen from 5 in 1990 to 28 in 2006 as pointed earlier. Other health training institutions have also scaled up during this period.

Table (7) numbers, types and sector of health training institutions in Sudan, 2006

College or institute	Public	Private	Total
Medicine	21	7	28
Dentistry	4	6	10
Pharmacy	5	7	12
Medical Laboratory Science	9	8	17
Nursing	7	3	10
Medical Radiology	2	3	5
Public and Environmental Health	7	1	8
Optics Science	1	0	1
Physiotherapy	1	3	4
Anesthesia	2	1	3
Total	59	39	98

The majority of these training institutions are part of universities in the public and private sectors. Although 13 medical schools are situated in states other than Khartoum, the majority of medical and health training institutions are biased towards Khartoum state. Over 50 percent of health training institutions are concerned with training of high level cadres such as doctors, pharmacists and dentists.

Fig (6): Graduates of medical schools and health training institutes in Sudan, academic year 2005/2006



Despite the expansion of medical and health education capacity in the county, the picture reflected in the graph shows a clear imbalance in the ratio of medical schools to nursing schools and training institutions of paramedical staff. The numbers of graduates clearly reflects this imbalance with doctors representing 48% and nurses 8% of the total pool of graduates for the year 2005/2006.

The contribution of private sector to this educational expansion is evident and typified by the increase of private institutes from 2 in 1990 to 39 in 2006. About 41% of medical and health training institutions are owned by the private sector with the share being most prominent in medical, dental, pharmacy and technician schools. This fact has important consequences on the capacity of nursing and paramedical schools where the private sector seems to be not focusing on. In fact, investment of both public and private sectors in training of allied health personnel is notably low and needs to be addressed. Higher education is focused on doctors, dentists and pharmacists whose training is more long and expensive compared to nurses and other health cadres.

The implications of this picture for skill mix of the health workforce can not be overlooked. The current situation of production shows that there is one graduated nurse for each six doctors. Read with the current status of the health workforce (table 4), this is going to effect an equilibrium between number of doctors and nurses within three years period given the current status of production is maintained. Public health and PHC staff ratios are also going to be affected in a similar way.

Success rate is likely reasonable in medical and health training institutes. However, the MOHE records estimate drop-out rate to be in the range of 5 percent in medical and nursing schools. This seems to be rather high for a country experiencing general shortage in the health workforce. Improvement of student mentoring and support in Ethiopia has resulted into lowering drop-out rates in medical schools from 15 percent to only 1.5 percent (Bossert et al, 2007).

To address the imbalance and the huge gap in nursing and allied health personnel, the FMOH has established in 2005 the Academy of Health Sciences (AHS) based on the training schools previously working under the auspices of the ministry of health. The AHS has enrolled nearly 5000 students in the academic year 2005/2006 in nursing and other paramedics' disciplines. The decentralized structure of the AHS and the potential available for support are factors

pointing the possibility of this academy playing an important role in improving the balance and closing the health workforce gap in the future.

Quality

Formal assessment of medical and health training institutions has not been conducted following the expansion during the last period. Thus, there is not enough data to judge all dimensions of qualitative assessment according to the criteria developed for medical schools by the World Federation for Medical Education (WFME, 2005). However, we can point to the following aspects building on the data available and on reports from the MOHE:

Educational program and curriculum is generally based on two models, the classical model with separation of the basic science period and the clinical period leading to qualification in six years time and the community-oriented model which integrates basic and clinical sciences leading to qualification in five years period. Assessment of students is generally participatory with involvement of the Sudan Medical Council and other medical schools. However, research to test and validate assessment methods and introduce new ones is not common and at least not shared among the schools and academia. Students are admitted on competitive terms and as pointed above, the competition is high leading to selection of good quality candidates. However student support systems are generally lacking or not clear in many of the medical and health training schools. Coming to the issue of staff, what is evident is that staff/student ratios are clearly below the optimum. Building on MOHE statistics for 2006, staff/student ratio in medical and health training schools is 1:10. This is really alarming when compared to the generally accepted rate of 1:4 or 1:6 in many similar countries. If we know that out of the 3527 staff, those teaching in medical schools are 2614 (74%), the picture becomes clear that nursing and other training schools are in a real crisis position regarding staff sufficiency. This is an issue that must have serious implications for quality. In addition to that, staff development programs are not practiced in many of these training institutions.

Educational resources in forms of lecture theatres, skill labs and libraries across medical schools are suboptimum as shown by a recent report from the MOHE. Basic science teaching personnel are in jeopardy in all medical schools. Moreover, problems in clinical training of medical students across teaching hospitals are not uncommon and conflicts between medical schools and hospitals are currently a feature. Situation in nursing and other training institutions is expected to be worse than what is happening in medical schools.

Program assessment and evaluation among medical schools is currently conducted by the SMC through participation in college evaluation and student assessment. However, studies and research that try to integrate staff and student opinions are very rare and not publicized.

As for the **governance** of medical schools, staff and to a lesser degree students are represented and have some influence on resource allocation and adjustment of the faculty program. However, there are no clear formal mechanisms to ensure that the education institutions are well aligned with the needs of the health system in the country. Curricula and teaching methods are generally not responsive to changes in health needs and strategies. However, when medical schools were approached by the MOH to integrate teaching of IMCI, there was a highly positive response showing a clue to the possibility of effecting reform.

Concerning **continuous renewal**, some medical schools have active educational development centers (EDCs) that use to look into curricular, staff development and teaching methods. How that review is regular and whether it leads to continuous renewal and an improvement is not clear.

What is said about medical schools is highly relevant to other training institutions; in fact situation in schools of medicine is conceivably better due to the focus and the attention that these schools enjoy. Research in medical education area in Sudan is still sporadic and under-developed.

Due to lack of data and previous research, the qualitative analysis thus provided about medical schools and health training institutions is crude and should be interpreted cautiously. Rigorous assessment and evaluation using criteria like that proposed by the WFME is urgently needed in Sudan in order to consolidate and streamline HRH education for the betterment of health services.

Postgraduate training

Postgraduate training for doctors in Sudan is deeply rooted, dating back to the 1930s when Sudanese physicians were sent to UK for specialty qualifications. During the 1970s, the postgraduate medical board was developed in the University of Khartoum and started to provide specialization programs for doctors. Over the following years some other medical schools such as Gezira and Juba faculties of medicine have also contributed to postgraduate medical training.

In 1995, the Sudan Medical Specialization Board (SMSB) was established with the philosophy of expanding an already narrow capacity of postgraduate training for doctors. The board has taken on completely the role of universities in specialization training in the majority of medical disciplines. In fact, the SMSB Act of 1999 and the Presidential Decree no 338/2001 has delegated the board to monopolize internal training and approve any sending of doctors for overseas training in areas that are not available internally. The following is a concise account and rapid appraisal of the capacity of SMSB using the educational funnel criteria.

The pool of applicants for medical specialization has increased substantially as a consequence of expansion in basic medical education in the country. Governmental support for candidates applying for the board and the tightening of training chances abroad has always helped to maintain a reasonable mass of applicants for the SMSB training. However, nowadays a diminishing number of applicants is increasingly recognized as a factor adversely impacting the production capacity of the board (SMSB, 2007). Interviews among doctors, policy makers and leaders of doctors union have blamed the tough and 'unfair' assessment and examination criteria as a factor discouraging doctors to apply for the board. Consequent up on the fact that young doctors started to seek alternatives for postgraduate training, a new trend towards joining Egyptian specialization programs was established. Currently there are nearly 200 Sudanese doctors enrolled in medical specialization programs under the Egyptian board and universities.

The capacity of the SMSB is also likely affected by the limited number of accredited hospitals for clinical training. The requirement of certain years of experience for a specialist doctor to be designated as trainer and the minimum standards for equipment has disadvantaged many hospitals in states in becoming training centers for the board. In 2006, around 93% of registrar doctors were placed in Khartoum state in less than 10 hospitals (SMSB, 2006). In some specialties such as orthopedics, radiology and neurosurgery, the capacity of the SMSB is greatly jeopardized due to the limited number of trainers in these disciplines.

The student success rate in the SMSB reflects another serious shortcoming; a recent study has demonstrated an overall success rate of 21% among doctors enrolled in the board (Badr, 2005). The current figure of success rate according to the records of the SMSB is an average of 53% with specialties scoring a 100 % success and others scoring as low as 29%. According to a recent study (Gismella, 2006) and a survey conducted by the SMSB among trainees and teaching staff, factors such as lack of clearly structured programs, poor availability of trainers and lack of supportive equipment are quoted as negatively influencing the training process. These are certainly essential student support systems that could be responsible for the sub-optimum success rate in the board.

Qualitatively, there was no detailed structured assessment of the training provided by the SMSB. However, we will briefly provide an account of the qualitative aspects of training building on some available data and information.

The mission, objectives and outcome of the SMSB are clearly articulated and communicated to the relevant stakeholders. The broad competencies required including knowledge base, skills and attitudes are defined and fairly stressed in different disciplines. Thus training is actually practice-based with students taking responsibility for service provision and patient care. However, areas preparing the candidate for professional leadership such as communication skills, public health issues and medical ethics are not actually stressed in clinical curricula.

Assessment of trainees is usually based on traditional parameters including theoretical and practical competences. The assessment process is largely discipline based and the outcome is decided by the specific council for each specialty. However, the area of exams and student assessment has been increasingly criticized for its toughness and subjectivity. Students, policy institutions such as the FMOH and even some of the trainers actually share these views and calls now are being spoken for movement towards more objective criteria to ensure quality. Constructive feedback on the performance of trainees on regular basis is not a habit.

Selection of trainees is usually based on fulfilling administrative and discipline based criteria that are commonly shared between the board and relevant bodies. However, student support activities and representation of students is largely lacking. Trainee doctors are not given chances to express their views and feedback on their training in a structured manner. Some of the registrar doctors interviewed strongly believes that expressing views on the training program can adversely affect the training outcome of a student.

Coming to the trainers, the SMSB Act of 1999 clearly specifies the expertise required for trainers (qualification in addition to 10 years experience). However, duties of staff and the balance between their educational and service commitments are not clearly described and agreed on. In fact trainers usually complain about the inadequate and irregular payments for them by the board for mentoring and training students. Regarding sufficiency of trainers, the recent figures from the SMSB records show that staff/student ratio is around 1:8 (311 trainers, 1500 trainees enrolled in 2006). This ratio is evidently sub-optimum compared to average standards.

Training settings and educational resources are fairly suitable in terms of hospitals capacities and patient numbers. Trainees are usually exposed to a wide mix of cases and have sufficient opportunities for in-patient and outpatient practice. This is all made possible because training is largely confined to Khartoum where hospitals are better equipped and deal with huge number of patients. Resources for learning in terms of libraries and utilization of IT services are actually not well developed. As a result of that, trainees are not commonly engaged in research activities.

Program evaluation is largely missing and specific assessments, if ever conducted, are not clearly documented and communicated to stakeholders. Feedback and mechanisms to address concerns of both trainers and trainees are largely not in place.

Concerning governance of the postgraduate training, the board is administratively organized to ensure compatibility of training to the stated regulations. Board degrees and certificates are granted to recognize graduates as qualified specialists. However, some areas relating to governance have some shortcoming. These include financing of training resources where lack of fund regularity is causing disturbance. Government funding for trainees, controlled by the NCT, is usually delayed leaving the board unable to timely deal with some training obligations.

Although not well structured, there are always efforts and procedures to review structure, functions and quality of training programs. However, implementation of corrective measures

is not equally enforced. The organization of the a recent conference to reform training in the SMSB is a substantial positive step in the continuous renewal milestone of postgraduate training for doctors in Sudan

CPD

The importance of CPD for health care delivery can not be over-emphasized. In Sudan, CPD is not adequately emphasized and as a result there is no nation-wide provision and management of in-service training and CPD. The recent HRH national survey conducted in 2006 has shown that three quarters of the country health workforce (74%) did not receive any form of in-service structured training during the past 5 years. The few staff that had the chance to attend CPD programs is mostly confined to urban areas and predominantly belongs to the medical profession. In rural areas, it is common to find health workers who have not been refreshed for periods of 15 years or more.

The current institutions providing CPD activities include the SMSB, medical schools professional associations, MOH through CPD centre, WHO, UNICEF and some other agencies and NGOs. Again, the first three providers are completely geared to providing CPD for doctors through conferences, workshops and structured programs. The ministry of health, WHO and other providers however, provide CPD for the health workers at large with a bias towards staff involved in disease programs and health services management. The following will be a brief account on quality assessment of CPD in Sudan using the WFME criteria.

The mission and outcome of CPD is not clearly defined and publicized and wide stakeholder involvement is not a feature. **Learning methods** tend to focus on integrating theory and practice where relevant and evidence is considered in designing and providing CPD activities in general terms. However, important dimensions such as description of candidates' expectations and inculcation of self-directed learning are not adequately emphasized. Also, CPD is not well related and integrated into service provision and practice and thus not reflected in the allocation of health care budgets. **Planning and documentation** of CPD activities is not usually emphasized in a systematic manner impeding the possibility of establish and generalize well recognized programs for different health cadres. It is not at all clear whether the desire to improve service provision is the major driving force for the **individual health professional** to pursuit CPD activities. Those who join in-service training programs do not often have the chance to discuss their learning needs or gain tools for self-assessment.

CPD providers: There is currently no comprehensive policy or system to recognize CPD providers according to any criteria and thus there exists no such agency that gives feedback to providers about recognition and continuous improvement. Medical schools and health training institutions usually focus on basic and qualification programs. Their role in CPD is not clear and there is hardly any emphasis in the curricula that inculcate a culture of lifelong learning that enables the student to appreciate in the future the importance of CPD for his practice and career. Even those medical schools with CME centers, tend to emphasize issues of curriculum and staff development at the expense of playing a wider role in providing CPD for health workers practicing in the health system. The SMSB, mandated by its law to provide CPD for doctors is not far from what is said about medical schools.

Educational context and resources: Due to absence of a comprehensive national policy and legal framework, there is no system to support or recognize participation of health workers in CPD activities whether inside or outside the country. Certificates and credits gained from these activities do not usually count towards the promotion of individual health worker or inform, in a systematic manner, the integration of relevant expertise into the workplace. The setting in health services and educational facilities is not well prepared and adapted to running training activities. No clear system to delineate protected time for CPD during the working career of health staff and access to IT and a literature resource across institutions is in

jeopardy. The current educational system in the country and CPD activities do not usually provide for joint learning and interaction among different health professions.

Evaluation of methods and competences: Due to the absence of a national oversight body, there are no clear mechanisms for evaluation and adjustment of CPD activities for different cadres of health workers. Among the individual institutions that provide CPD activities, it is not a common practice to seek feedback from participants and utilize it to further improve and develop different training programs.

Organization and management: As previously stated, there is yet no comprehensive guiding policy for CPD in the country. Health professionals associations including the Sudan Medical Association are involved in CPD programs mostly through conferences and workshops organized by different specialty societies. Some of these bodies such as the association of pharmacists have gone further to establish their own CPD centers. However, there is currently no clear leadership role played by professional association in organization, finance or management of CPD activities.

Health care budget in the country usually contains no clear budget line for CPD programs, rather these activities are support through larger training allocations or on ad hoc basis.

Continuous renewal: Such systematized review is not known to exist at the national level and it is not clear whether it is adopted at the level of individual institutions.

Human resource management

Public sector context

The HRH sector in Sudan operates within the context of decentralization and is governed by the civil service rules. Public sector health workers are employed under the civil service terms in a situation similar to employees in other public sectors. Health workforce is considered to be number two in size coming after the education sector workers.

Civil service in Sudan has deteriorated considerably over the last three decades, and now it is described as de-motivating (Habbani et al, 2006). Wages are low, conditions of service are suboptimum and promotion differences are negligible in terms of money and entitlements. The public bureaucracy is very large and it is usually difficult to improve remuneration substantially, and of course any tendency to introduce targeted improvements for vital sectors such as the HRH is very likely to provoke chain reactions among other sectors and thus usually avoided. Within the civil service and public financial rules, even toppings for health workers out of health sector resources are largely restricted through directives from the MOF. Decentralization has always been there in Sudan health system in form of deconcentration and later devolution following the establishment of SMOHs in the late 1980s. However, within the health sector higher levels cadres and in particular doctors remain largely centralized in terms of initial recruitment, deployment and transfer. Higher staff grades working in states also used to be promoted centrally through the CSC.

With the advent of a new constitution for Sudan in 2005, far more decentralization arrangements were taking affecting the public sector staff including health workers. The responsibilities for recruitment, deployment, management of transfer and promotions have become under the authority of state governments.

It is too early to assess the implications of these new decentralization arrangements upon the sector of HRH in the country although there are signs to show adverse effects on deployment and distribution of staff to different states in particular those less developed.

According to the FMOH statistics, deployment of doctors to work in states has diminished by 35% in 2005 compared to the rate in 2004. Similarly, when the new national program for employment of graduates advertised in 2006 application to jobs through states governments, health workers especially doctors and technicians were the least to apply. This same phenomenon is happening now with the second round of the employment program and around

six of the states have reported zero application for doctors and health technician staff. This is happening while there are currently more than 800 doctors and may be more technicians awaiting employment chances through the FMOH. What is happening can be partly explained by the strong tendency of HRH to work in Khartoum states; however, this is an area for research to really extract the views and concerns of health workers in relation to new decentralization arrangements.

HRH stewardship

During previous times, HRH was not really considered as a priority area within the machinery of the country health system. As a result of that, HRH stewardship has always been weak in terms of advocacy and leadership. The **department of human resource development** in the FMOH which is supposed to lead planning and management was until recently subordinated, understaffed and largely geared to personnel administration function. In terms of staff capability, systems and logistic support, the department is still in need of much more capacity.

Regulation of private sector and medical practice as a vital stewardship function is also an area where much is lacking. The SMC is mandated by its law to register and license doctors, dentists and pharmacists and is doing fairly well on that front. This holds true for the CAHP regarding regulation of other health cadres. The system of employment in the country requires professional registration for health workers in order to get employed, a fact that facilitates the roles of both councils. However, both the medical council and the paramedical council tend not to be proactive in ensuring licensure of health practitioners and the checking system largely depends on complaints in detecting violations. In several occasions, foreign health professionals coming to practice in Sudan through private sector assignments or charity missions are not properly ensured to be registered and complying with the practice requirements in the country. In two states of Sudan (South Darfur and Red Sea), missions of foreign doctors and other health professionals were directly involved in service provision without passing through the SMC during 2006 and 2007. Also, many complaints are usually raised about doctors not abiding by regulations dictating their sign posts in their private clinics. One civil society organization has recently directed a complaint to the SMC about this phenomenon attaching photos documenting violations in some private clinics.

A phenomenon that is increasingly observed is the private practice by public staff especially doctors during the working hours of the day. Many of these professionals are seen in private hospitals and clinics before mid-day in a phenomenon that seriously implicated the provision of health care and training of students in public health facilities. The stewardship role of the FMOH and SMOHs felt short of addressing this problem so far. However, a model of how stewardship and enforcement of regulations could effective has been demonstrated by one state (Gezira State) that managed to largely abolish this sort of practice through monitored decisions and directives.

Partnerships in for of engagement of the community and related stakeholders in issues pertinent to HRH is also a weak area. Forums for stakeholders to coordinate HRH issues are either weakly functioning or non-existent. Representation of each organization in the boards and mechanisms of another organization is theoretically emphasized; however, in practice this sort of participation is mostly irregular and fragmented. As a result of this poor situation in this stewardship function, many of the policies and decisions pertinent to HRH are taken in separate compartments leading to adverse implications upon the development of HRH in the country. Many examples in education, planning and management can be shown to document this shortcoming.

Administration of human resource management

Traditionally, this area has been the focus of human resource domain worldwide and personnel administration was the main slogan before introduction of the human resourcing concepts. Thus, in many countries human resource departments have always emphasized the

administration of human resource management. The following account is a rapid appraisal of the status of human resource management in Sudan.

Recruitment and job descriptions

As mentioned earlier health workforce in Sudan falls under the remits of civil service and abide by its rules and regulations. Based on that, hiring and recruitment of health personnel is a function that is administered by the civil service with no role given for health authorities. The public sector selection committee, affiliated to the Ministry of Labor, usually selects employees for the health and other sectors based on fulfilling the criteria of civil service. Jobs for employees are permanent for the life-time until the age of retirement.

In the health sector, there are currently over 25 categories of health workers in Sudan practicing in different levels of the health system. After selection of a candidate through the mechanism just described, the ministry of health usually get the individual appointed and deployed for work.

Job classification based on the history of health practice has always been in existence. The traditions of different health professions and the registration remits has also helped to consolidate job specifications, scope of practice and the roles of the main cadres involved in health care. Some forms of job descriptions are also found with concentration on staff working in hospitals and curative services. The situation regarding job description for PHC workers is not as clear and developed as the case of secondary and tertiary care.

However, the overall situation is not ideal with no clearly detailed, well documented and publicized job descriptions for health staff. It is not a common practice to conduct job coaching sessions or hand in written job descriptions for health personnel at the time of their appointment. There are several occasions when the ministry of health embarked on writing and disseminating detailed job descriptions for categories of health workers but, this task is never completed. Some times, this area of deciding authority and scope of practice for different health professions is highly controversial and tinged with professional politics. Disputes about the scope of practice and the line responsibilities has increased recently following the appearance of increasing numbers of graduate health cadres such as technicians. These university level categories started to challenge the role of doctors who have always dominated the scene of medical and health practice. Currently, technicians and other health professions are struggling to introduce some amendments into the newly proposed public health act in the way of strengthening their role in service provision. This turmoil, if not better handled, could lead to muddling of professional boundaries and practice with an overall adverse consequence for the health care provision in the country.

Career structure and promotion

The career pathway for health workers is another problematic area in Sudan in particular for cadres other than doctors. It has always been generally clear for doctors to follow a career path that starts with internship and going through generalist status to obtaining specialist positions after relevant qualifications.

For nurses and other categories of health staff, there used to be no clear professional career prospects; the promotion that takes place is usually administrative along the ladder of civil service and managerial line responsibilities. Technical staff and university graduate health categories are currently much concerned about their career prospects and what further experience and qualifications can add to the professional status of the individual. Although the professional prospects and career is the prime concern for health workers, they are also aware that their promotion along civil service ladder and their placement in different health institutions is also enhanced by their professional advancement. Thus the motivation for professional career structure is powerful among all categories of the health workforce.

The career structure is however, not only about promotion for individuals, rather it constitutes a whole system of organizing the practice and service provision in a way that is clear for

consumers and predictable for health providers. Open and clear career prospects have been shown in many studies to be highly motivating for health workers with positive implications on retention of staff within the health system.

Deployment and retention

The deployment and distribution of health workers is done in different ways for different cadres. Lower level cadres such as nurses, medical assistants and midwives are better deployed, distributed and retained in states and rural areas. The fact that these cadres enjoy lower level qualifications and are mostly selected from local communities plays important role in their retention for long periods. Most of these categories and other PHC staff are selected and appointed locally and promoted within the state.

The tradition with doctors and other high level cadres is different from what is just described. These cadres are mostly centralized in terms of deployment, placement and promotion. The FMOH thus, used to be immensely involved in the management of deployment and retention of these professions. Owing to this fact and to the recognized level of qualifications of doctors, dentists and pharmacists, the situation of their distribution and retention is not at all satisfactory compared to nurses and other cadres.

Historically, Sudan has a good record of systems of deployment and retention of doctors in different parts of the country. Distribution of generalist and specialist doctors used to be based on both motivation and robust administrative discipline. Procedures were described to be fair and equitable and the system offers for motivation in form of training chances following a rotation in states and rural areas. Old doctors describe that system as being punctual, predictable and highly credible especially in guaranteeing overseas postgraduate training chances. However, over time this system was eroded and deployment and retention of doctors to states and rural areas becomes a serious concern over the past two decades.

Currently, doctors are highly concentrated in Khartoum and prefer to wait for jobs within this state for months rather than going to fill a vacant job in other states. In 2005, there were 500 vacant jobs for doctors in states other than Khartoum and Gezira, while at the same time around 500 doctors are registering in the waiting list for jobs within Khartoum. Jobs for specialist doctors are also holding vacant in many states concurrent with increasing numbers of specialists waiting unemployed for job chances in Khartoum. Many factors are thought to be responsible for this imbalance including poor developmental status in many states, concentration of services and private sector chances in Khartoum, lack of motivation and incentives and the rather weak management of HRH.

Performance management and appraisal

Probably this is one of the weakest areas in HRM in Sudan. Performance appraisal and productivity measures for the health workforce are not practiced at all levels. Within the civil service, of which health sector is a faction, performance assessment is done for promotion using a very crude and incremental criteria. Based on civil service rules, annual reports about performance of employees are to be submitted by line managers. These reports were based on subjective assessment of the employee by his line manager using a prescribed sheet that is sent to the personal file of the employee and used for promotion. In practice, these forms are actually filled by the employee himself and presented to the line manager to just sign it as a routine.

Given such situation, real appraisal of performance and productivity of health workers is far from being objectively known and assessed. This has adverse implications on the quality and efficiency of the health workforce besides its consequences on equity and fairness in judging and rewarding performance of individuals.

Performance related pay was tried in some institutions but could not be adopted because of factors such as chain reactions, mechanisms for monitoring and implementation, prevalent culture of looseness and compassion, and lack of supervision.

Employee (labor) relation

Again this is an area that is not emphasized within the HRH sector in Sudan. Trade unions and health professional associations have been in existent since the early inception of the country health system. These associations have played overtime a major role in shaping the practice and serving the agenda of health professionals; their bargaining power has always been effective and some such as SDU has participated in shaping the political scene in the country. Despite all this, the function of labor relation within the ministry of health has not been adequately structured and effective. Labor problems and dispute are often dealt with in an ad hoc, reactionary manner. As a result of that, tension and appearance of reactions such as strikes has mostly shaped the relationship between the employer (MOH) and the representatives of employees (associations).

Supervision

Supervision systems and practices are always there in the Sudan health system. However, there are some problems in the area of supervising health workforce. One issue is the lack of frequent supervisory visits in particular to states and rural areas. One study found that only 33 percent of out reach health workers are adequately supervised (FMOH, 2004). Another shortcoming is the fact that supervisory visits are more like inspecting than supporting the health workforce.

Health workforce data

Data and information on health workers are usually incorporated within the annual statistical report of the FMOH. However, there are several shortcomings in this report regarding coverage and scope of data. The system focuses mainly on public sector statistics and some important parameters such as gender, age and educational levels of the health workforce are completely ignored.

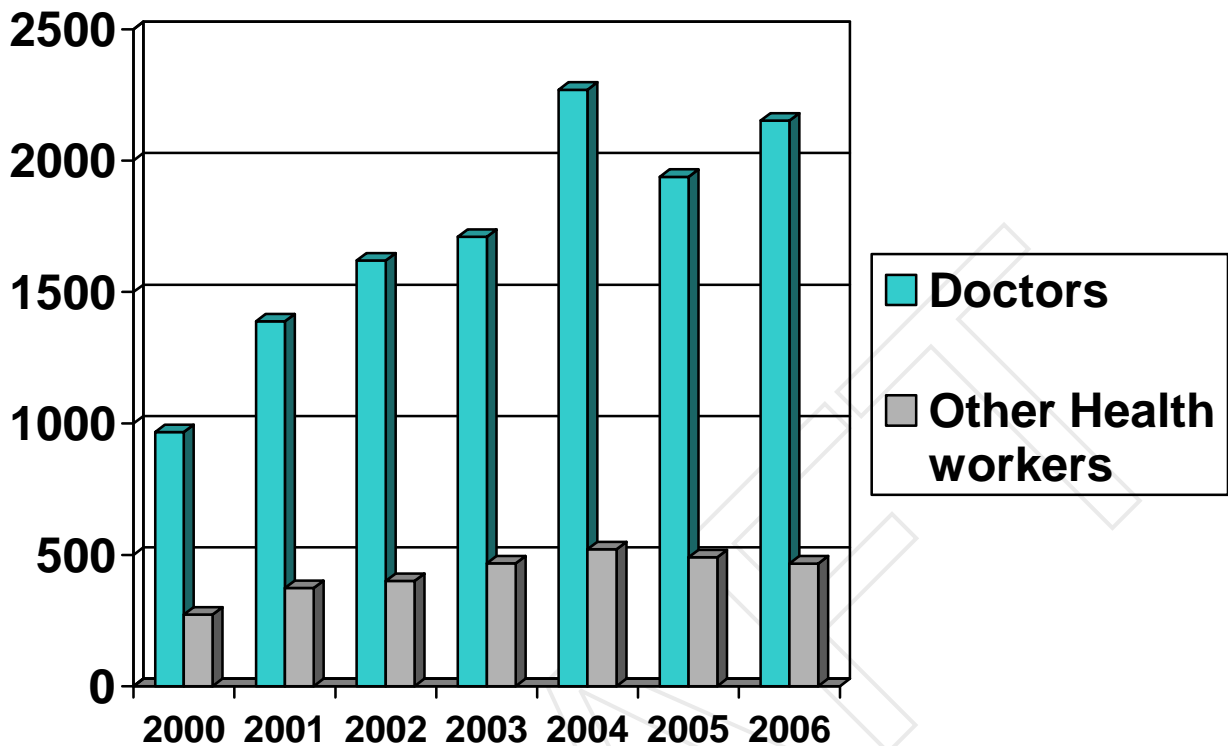
In order to better inform policy and planning, some efforts were exerted recently to obtain sensible HRH data and information. In 2006, the FMOH has completed in collaboration with the WHO a nation-wide survey on health workforce. The results of the survey are currently stored in a database that has provided a clearer picture on HRH and informed some reports and documents including this HRH strategy. The survey has also laid the foundation for establishing the National Human Resources for Health Observatory (NHRHO) which is going to function as a dynamic human resource information system (HRIS) for the country. The observatory is also going to address a previously neglected area- that HRH research which is also expected to effectively inform policy development and decision-making in the sector of HRH.

Health worker migration

Sudan is one of the developing countries affected by the phenomenon of brain drain of health professionals. Emigration in Sudan is dominated by physicians and some specific categories such as pharmacists and dentists. One study showed that Sudan has lost 60 percent of its doctors and 25 percent of its pharmacists to out-migration (Badr, 2005). Common destinations for Sudanese migrating professionals include Saudi Arabia, United Kingdom, Republic of Ireland and the Gulf States in order of intensity. Traditional push and pull factors are contributing to this brain drain with financial and educational reasons ranking high among the causes of migration (Badr, 2005).

With the advent of peace, there were some expectations that trends of migration may lessen; however, proxy indicators such as the number of health workers requesting experience certificates, show that trends are still considerable. The following figure depicts the size and trend of health worker migration over the last years.

Fig. (7) numbers of doctors and other health workers obtaining experience certificates from the FMOH over the period (2000-2006)



On the other hand, Sudanese health professionals working abroad are regarded to be a true asset for the country health system. Sudanese diaspora in countries like UK and Saudi Arabia has shown interest and willingness to contribute to health services and medical education in the country; in fact there are already models for such a contribution.

Other issues

Other issues pertaining to human resources management both systematic and organizational are not clear due mainly to lack of data and evidence. Areas such as motivation, working conditions and worker safety, absenteeism and workers practices and perspectives are in need of qualitative research to be more clearly appreciated and incorporated into policy and practice.

Main challenges and issues

Based on the situation analysis, several challenges and issues pertaining to HRH in Sudan can be identified. These include the following:

- Scaling-up of production and retention of health workers to achieve a better coverage for the health services in the country
- Addressing the skill mix imbalance that has resulted from poor HRH planning and coordination. The typical example is the huge gap in nurses and paramedics compared to doctors
- Establishing an effective and comprehensive human resource information system (HRIS) where by timely relevant data and information is there to support policy and decision making
- Instituting and maintaining an effective stakeholder platform to improve policy, planning and coordination on HRH issues

- Optimizing production of HRH through educational review and reform involving production policies, curricular reform and capacity building for educational institutions
- Addressing the area of in-service training and CPD through setting the system and institutionalizing CPD to enhance careers for all categories of health workers
- Capacity building for human resource management both at the federal and state levels, not forgetting the necessity to enhance leadership capabilities.
- Addressing HRH issues within the context of health system decentralization in the country. Problems of inequitable staff distribution and retention of health workers within states and rural areas are among the main challenges in this aspect.
- Introducing and operating robust HRH management systems including job descriptions, supervision, performance appraisal and personnel administration
- Addressing the area of HRH research in the aspects of both quantitative and qualitative studies after setting the agenda and research priorities.

Opportunities

The current arena is witnessing several opportunities towards improving HRH situation both at the national and international levels. The following is a brief account of the potentials that could support future efforts to address health workforce issues in Sudan:

- Political and health system focus on issues related to HRH. This includes the political commitment expressed in many occasions.
- Potential sources of finance available for HRD based on improving governmental health spending and donor funds already approved.
- Promising education capacity as shown by the good number of medical schools and health training institutions.
- Talented willing diaspora of Sudanese physicians and health professionals
- Emergence of private sector which has already demonstrated ability to contribute to HRD
- Global focus on HRH brought by the multitude of movements and initiatives introduced during the past five years.

Vision

Sudan is to be a country with a talented diversified health workforce, capable of delivering the right health interventions for the achievement of the MDGs and promotion of population health..

Mission

To build and make operational, the right number and mix of the talented workforce through properly institutionalizing HRH functions including policy, planning, education and management..

Principles

This strategy recognizes the general principles underpinning health care in Sudan. These principles involve obligations such as the right to health and universality of coverage. Other principles include equity, effectiveness, efficiency and sustainability. Within the HRH domain, this strategy adopts and emphasizes the following principles:

- Professionalism
- Accountability
- Team approach
- Trust/responsiveness
- Transparency

- Evidence-based practice
- Recognition of good practice

Guiding documents

This strategic plan will be informed by the following documents:

- Sudan interim constitution
- Decentralization arrangements.. Laws, directives ...
- The national health policy for Sudan
- The 5 years health strategy for Sudan 2007-2011
- HRH 10 years projections 2003-2012

Goal

To contribute to improving population health through ensuring the access of every citizen to a skilled health worker..

Strategic objectives, targets and indicators

Strategic objective 1

Strengthen and institutionalize HRH policies and plans in the decentralized health system of the country

Targets

- review and assess the group of HRH policies already in place
- strengthen institutional capacity in leadership, policy development and planning for HRH
- identify policy gaps and develop new HRH policies
- propose and develop legal frameworks and legislations emanating from HRH policies
- advocate and build consensus for the strategic plan and HRH plans at different levels
- agree on and institutionalize a planning approach and matrix for HRH sector in the country
- develop HRH work plans for national level, states and localities
- establish mechanisms for policy and plans implementation
- propose a methodological framework and mechanisms for monitoring and evaluation of HRH policies and plans

Indicators

- policy review conducted and document produced and disseminated
- number of HRH staff trained in policy development and planning at different levels
- number of new HRH policies developed and adopted based on gap analysis
- number of HRH laws and bylaws proposed or approved
- a unified planning approach adopted and a matrix for HRH in is in place
- number of HRH plans developed and endorsed at national, state and locality levels
- monitoring and evaluation framework in place
- number and functionality of mechanisms developed for HRH implementation and M&E.

Strategic objective 2

Develop and institutionalize intelligence and partnership for HRH sector in the country

Targets

- establish and operate the national human resources for health observatory
- develop institutional and state branches for the observatory
- develop HRH research agenda and commission research and studies at all levels
- foster partnership for HRH among all stakeholders concerned with clear role definition
- develop forums for stakeholders to harmonize HRH policies, plans and practices

Indicators

- the HRH observatory developed at national, state and local levels and fully functional (number of branches established)
- HRH research agenda document prepared and endorsed
- Number of studies conducted on HRH in the country
- Number and functionality of HRH stakeholder forums

Strategic objective 3

Advocate for and ensure adequate finance for the health workforce and HRD actions.

Targets

- mobilize resources for implementation of HRH plans at the national, state and local levels
- improve the overall remuneration and balance salaries for all categories of health workers
- mobilize financial resources to improve working conditions and workers health and protection
- develop and adopt incentive packages for state and rural placement
- mobilize the required resources to address the needs of training for health workers at the level of pre-service and in-service training programs

Indicators

- HRH plans adequately funded at all levels
- Number of health workforce categories benefiting from a salary increase
- Number of modalities of worker protection done e.g. hepatitis vaccination, protective clothes..
- Incentive packages developed, endorsed and implemented
- Number of pre-service and in-service training programs introduced

Strategic objective 4

Achieve the balance towards production of the right number and skill mix of health workers

Targets

- conduct in-depth appraisal of medical education and health training system and institutions in Sudan
- strengthen capacities for educational institutions at all levels of the decentralized health system of the country
- enrolment and production of health workers needed to close gaps and achieve balance of skill mix (see projections in tables 8&9 below)
- strengthen links and ensure sustained coordination between health services and academia especially in curriculum development
- develop and maintain external links and collaboration for educational reform and strengthening

Indicators

- appraisal study conducted, reported and communicated to stakeholders
- number of interventions to address capacities of educational institutions
- numbers of enrolled candidates in different medical and health institutions
- number of curricula and reviews developed jointly by health service and academia
- number of links or twinning developed

Strategic objective 5

Develop and institutionalize human resource management systems at the levels of the decentralized health system

Targets

- review systems and structures for HRM
- strengthen capacity for leadership and HRM in organizations at the national, state and local levels (HRH departments)

- develop, endorse and operate human resource management systems at different levels of the health system (see box 1 below)
- strengthen health professional regulation and accreditation systems and practices
- conduct and institutionalize training need assessment (TNA) for all categories of health workers on regular basis
- develop, endorse and adopt a national system for CPD and career development to ensure continuous updating of competency for health workers

Indicators

- review conducted, reported and disseminated
- number of leaders/managers who received raining courses
- number of HRM systems developed, endorsed and implemented
- health worker regulation/accreditation system in place
- number of training need assessment exercises performed
- CPD policy developed, endorsed and implemented

Table 8 projections for addressing critical shortage (doctors, nurses, midwives)

Category	Current numbers 2007	Rate per 1000 people	Enrollment/production 2008-2012	Total numbers by 2012	Rate per 1000 people
Doctors	11083	0.31	10.000	21083	0.53
Nurses	18433	0.51	30.000	48433	1.21
Midwives	14921	0.41	10.000	24921	0.62
Total	44437	1.23	50.000	94437	2.36

Table 9 Projections focusing on PHC personnel

Category	Numbers to be trained
Community health workers	10.000 (to serve nomadic populations)
Medical assistants	8.000 (to staff basic health units)
Family physicians	400 (to staff rural hospitals)
Total	18.400

Projections for training doctors for medical specialization

Enrollment and production of 2.500 specialist doctors (in general and subspecialties) based on the figures of the 10 years projection plan.

Box.1 Human resource management systems to be developed and implemented during the strategy period

- recruitment and job descriptions
- deployment and retention
- personnel administration
- career structures and promotion
- performance appraisal
- registration, regulation and employee relations
- supervision
- health workforce tracking

Timeline for the strategic plan implementation

Ghant chart showing time-line for implementation of major strategic actions

Strategic actions	2008	2009	2010	2011	2012
Assessment of HR policies, management systems and educational capacities and institutions					
Development of new HR policies and HR management systems					
Development and adoption of HR plans at national, state and locality levels					
Capacity building programs for policy, leadership, management systems and educational aspects (individual and institutional)					
Full establishment and operation of the HRH observatory at national and state levels					
Development and adoption of rural placement package For health professionals					
Improvement of remuneration (salaries) for health workers					
Accomplishment of training need assessment (TNA) for health workers					
Enrollment and production of the required numbers for different categories of health workers					
Evaluation of the HRH plan					

Costing and resources required for financing the 5 year strategy

Building on the figures for human resource development funds included in the 5 years health strategy and considering other dimensions of HRH introduced in this plan, the following budget is roughly needed to support the plan implementation:

HRH domain	Budget in USD
Education and training	90.000.000
Policies, plans and management systems	12.000.000
Total	102.000.000

There are currently opportunities for financing HRH expenses and plans through national and donor funding. The improving government expenditure on health can reflect positively on HRH financing. Other important sources include the WHO biennial plan for 2008/2009 where around USD 700.000 is allocated for health workforce issues. Within the multi-donor trust fund (MDTF) providing USD 70 million for four states, support for HRH is included in particular for domains of training and retention of health workers. Recently the GAVI proposal has been approved with around USD 2.8 million allocated for HRH.

Implementation, monitoring and evaluation of the plan

Monitoring and evaluation is essentially required to guide, assess and adjust implementation of this strategic work plan. Indicators obtained from the literature and the national norms stated in the health strategy are to be used as a framework for monitoring and evaluation in order to ensure achievement of plan objectives. The operational and detailed HRH plans at different levels should define clearly the responsibilities of each body in implementation of the plan with the possibility of setting up new mechanisms for guiding and effecting implementation. The framework for monitoring and evaluation of this strategy is composed of the indicators and benchmarks set for different targets and strategic objectives. The Ghant chart showing the time line for the strategic functions of the plan can also be used to inform monitoring and evaluation.

References

- Badr, E. (2005) Brain drain of health professionals in Sudan: magnitude, challenges and prospects for solutions. MA thesis, Nuffield International Center, University of Leeds UK
- Bayoumi, A. (1979) the history of health services in Sudan. Kenya Literature Bureau, Nairobi
- Bossert et al (2007). Assessing financing, education, management and policy context for strategic planning for human resources in health. A draft report for the WHO.
- Buchan, J. (2000) health sector reform and human resources: lessons from the United Kingdom. Health policy and planning, 15(3), 319-325.

Elabassi, M. (2003) *The implementation of federal decentralization in Sudan and its impact upon the sector of public health*. PhD thesis. University of Maastricht, Netherlands.

Federal Ministry of Health (2006). Annual statistical report. National Center for Health Information, Khartoum

Federal Ministry of Health (2005) the situation and role of private sector in Sudan. A report from the directorate of health planning

Federal Ministry of Health (2004) health system survey report. Directorate of health planning

Federal Ministry of Health (1969). Annual statistical report. National Center for Health Information, Khartoum

Gismella, S. (2006) a survey among registrar doctors enrolled in the Sudan Medical Specialization Board. Unpublished

Habbani, S., Badr, E. , Abubakr, W. (2006) Health governance in Sudan. A major report for the WHO/EMRO

Joint Learning Initiative (2004). Human resources for health: overcoming the crisis, Harvard Publishing, Cambridge

Ministry of Higher Education (2003) the annual statistical book, department of statistics and planning, Khartoum

Sudan Household Health Survey (2006). Report for the ministry of health. PHC directorate, Khartoum

Sudan Medical Specialization Board (2007) capacity of the board for training doctors. A report submitted for the medical education committee, Council of Ministers.

Sudan Medical Specialization Board (2006) annual report of the board, office of the registrar.

USAID (2003) *The health sector human resource crisis in Africa. An issues paper* [Online] available from: <http://www.unsudanig.org/JAM/cluster/social/background-docs> [Accessed 1 October 2007].

World Bank (1993). World development report: investing in health. WB, Washington DC

World Federation for Medical Education (2005) quality indicators for medical education (basic, postgraduate and CPD). Accessed from the website of WFME.

World Health Organization (2006). World health report: working together for health. WHO, Geneva